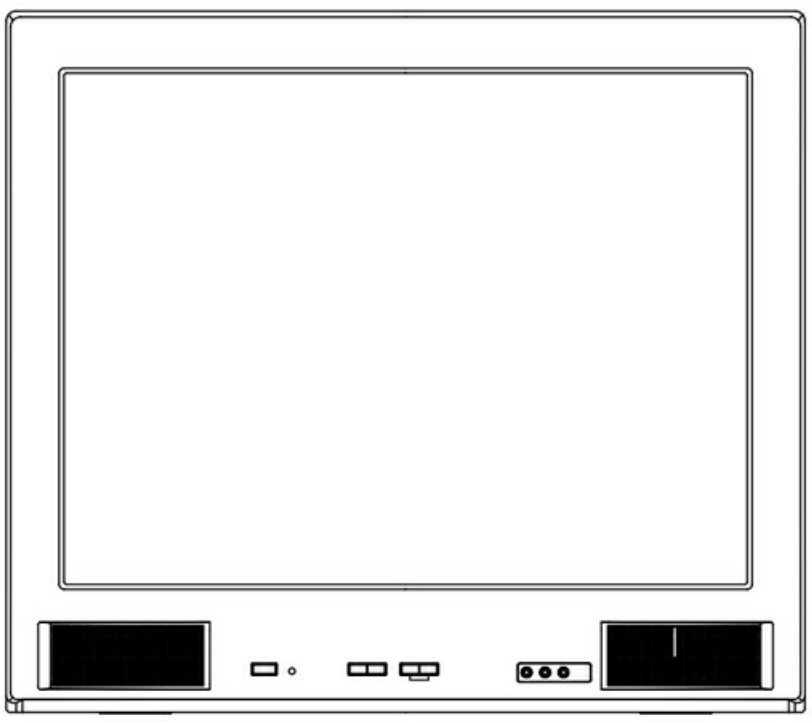
Manualslib.com - The Global Manuals Library

PANASONIC CT-2701 SERVICE MANUAL



Quick Links

General Specifications

Table of Contents

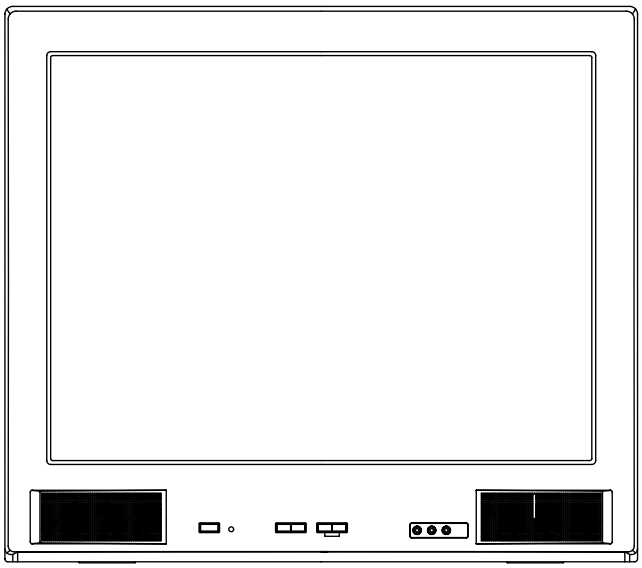
Table of Contents
Important Safety Notice
Service Notes
About lead free solder (PbF)
GENERAL SPECIFICATIONS
REMOVAL OF ANODE CAP
DISASSEMBLY INSTRUCTIONS
INSTALLATION
NOTE FOR THE REMOVAL OF THE MAIN PCB
SERVICE MODE LIST
CONFIRMATION OF HOURS USED
WHEN REPLACING EEPROM (MEMORY) IC
ELECTRICAL ADJUSTMENTS
BEFORE MAKING ELECTRICAL ADJUSTMENTS
BASIC ADJUSTMENTS
PURITY AND CONVERGENCE ADJUSTMENTS
ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION
BLOCK DIAGRAM
PRINTED CIRCUIT BOARDS MAIN/CRT
POWER SCHEMATIC DIAGRAM
VOLTAGE LIST
MICON/CHROMA/TUNER
DEFLECTION/CRT
WAVEFORMS
MECHANICAL EXPLODED VIEW
MECHANICAL REPLACEMENT PARTS LIST
ELECTRICAL REPLACEMENT PARTS LIST
Other ManualsLib Projects

ORDER NO. MTNC030940C1
B05

Service Manual

Color Television

Main Manual



Panasonic

Models	Chassis
CT-2701	TMC589

This service manual is issued as a service guide for the models listed above.
Included in this manual are a set of schematic, block diagrams, functional descriptions, alignment procedures, disassembly procedures and a complete parts list.

WARNING! This Service Manual is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. **Products powered by electricity should be serviced or repaired only by experienced professional technicians.** Any attempt to service or repair the product or products dealt with in this Service Manual by anyone else could result in serious injury or death.

The service technician is required to read and follow the **Safety Precautions and Important Safety Notice** in this Main Manual.

Panasonic®

Copyright 2003 by Matsushita Electric Corporation of America. All rights reserved. Unauthorized copying and distribution is a violation of law.

CONTENTS

CONTENTS A1-1
Important Safety Notice A2-1
Service Notes A2-2, A2-3
About lead free solder (PbF) A2-4
GENERAL SPECIFICATIONS ..... A3-1~A3-5
DISASSEMBLY INSTRUCTIONS
1. REMOVAL OF ANODE CAP B-1
2. NOTE FOR THE REMOVAL OF THE MAIN PCB B-1
SERVICE MODE LIST C-1
CONFIRMATION OF HOURS USED C-1
WHEN REPLACING EEPROM (MEMORY) IC C-1
ELECTRICAL ADJUSTMENTS
1. BEFORE MAKING ELECTRICAL ADJUSTMENTS D-1
2. BASIC ADJUSTMENTS ..... D-1~D-3
3. PURITY AND CONVERGENCE ADJUSTMENTS D-4
4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION) D-5
BLOCK DIAGRAM E-1, E-2
PRINTED CIRCUIT BOARDS
MAIN/CRT ..... F-1~F-4
SCHEMATIC DIAGRAMS
MICON/CHROMA/TUNER G-1, G-2
DEFLECTION/CRT G-3, G-4
POWER G-5, G-6
SOUND/AV G-7, G-8
COMB/FILTER ..... G-*, G-10
AV G-11, G-12
VOLTAGE LIST H-1, H-2
WAVEFORMS I-1, I-2
MECHANICAL EXPLODED VIEW J-1
MECHANICAL REPLACEMENT PARTS LIST K1-1
ELECTRICAL REPLACEMENT PARTS LIST ..... K2-1~K2-4

Important Safety Notice

Special components are used in this television set which are important for safety. These parts are identified on the schematic diagram by the symbol ⚠ and printed in **BOLD TYPE** on the replacement part list. It is essential that these critical parts are replaced with the manufacturer's specified replacement part to prevent X-ray radiation, shock, fire or other hazards. Do not modify the original design without the manufacturer's permission.

Safety Precautions

General Guidelines

An **Isolation Transformer** should always be used during the servicing of a receiver whose chassis is not isolated from AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect the Receiver from being damaged by accidental shorting that may occur during servicing.

When servicing, observe the original lead dress, especially in the high voltage circuit. Replace all damaged parts (also parts that show signs of overheating.)

Always Replace Protective Devices, such as fishpaper, isolation resistors and capacitors, and shields after servicing the Receiver. Use only manufacturer's recommended rating for fuses, circuits breakers, etc.

High potentials are present when this Receiver is operating. Operation of the Receiver without the rear cover introduces danger for electrical shock. Servicing should not be performed by anyone who is not thoroughly familiar with the necessary precautions when servicing high-voltage equipment.

Extreme care should be practiced when **Handling the Picture Tube.** Rough handling may cause it to implode due to atmospheric pressure. (14.7 lbs per sq. in.). Do not nick or scratch the glass or subject it to any undue pressure. When handling, use safety goggles and heavy gloves for protection. **Discharge the picture tube** by shorting the anode to chassis ground (not to the cabinet or to other mounting hardware). When discharging connect cold ground (i.e. dag ground lead) to the anode with a well insulated wire or use a grounding probe.

Avoid prolonged exposure at close range to unshielded areas of the picture tube to prevent exposure to X-ray radiation.

The **Test Picture Tube** used for servicing the chassis at the bench should incorporate safety glass and magnetic shielding. The safety glass provide shielding for the tube viewing area against X-ray radiation as well as implosion. The magnetic shield limits the X-ray radiation around the bell of the picture tube in addition to the restricting magnetic effects. When using a picture tube test jig for service, ensure that the jig is capable of handling **50kV** without causing X-ray radiation.

Before returning a serviced receiver to the owner, the service technician must thoroughly test the unit to ensure that is completely safe to operate. **Do not use a line isolation transformer when testing.**

Leakage Current Cold Check

Unplug the AC cord and connect a jumper between the two plug prongs.

Measure the resistance between the jumpered AC plug and expose metallic parts such as screwheads, antenna terminals, control shafts, etc. If the exposed metallic part has a return path to the chassis, the reading should be between 240kΩ and 5.2MΩ. If the exposed metallic part does not have a return path to the chassis, the reading should be infinite.

Leakage Current Hot Check (Fig. 1)

Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during the check.

Connect a 1.5kΩ 10 watt resistor in parallel with a 0.15µF capacitor between an exposed metallic part and ground. Use earth ground, for example a water pipe.

Using a DVM with a 1000 ohms/volt sensitivity or higher, measure the AC potential across the resistor.

Repeat the procedure and measure the voltage present with all other exposed metallic parts.

Verify that any potential does not exceed 0.75 volt RMS. A leakage current tester (such a Simpson Model 229, Sencore Model PR57 or equivalent) may be used in the above procedure, in which case any current measure must not exceed 0.5 milliamp. If any measurement is out of the specified limits, there is a possibility of a shock hazard and the Receiver must be repaired and rechecked before it is returned to the customer.

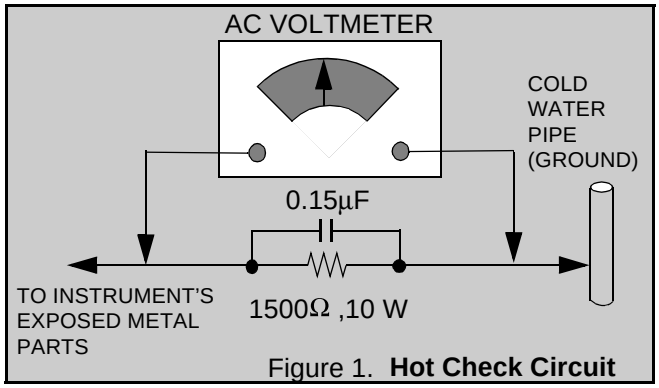


Figure 1. **Hot Check Circuit**

X-ray Radiation

WARNING: The potential source of X-ray radiation in the TV set is in the High Voltage section and the picture

Note: *It is important to use an accurate, calibrated high voltage meter.*

Set the **brightness and picture** controls to Minimum. Measure the High Voltage. The high voltage should be **30.5 ± 1.0kV.** If the upper limit is out of tolerance, immediate service and correction is required to insure safe operation and to prevent the possibility of premature component failure.

Service Notes

Note: These components are affixed with glue. Be careful not to break or damage any foil under the component or at the pins of the ICs when removing. Usually applying heat to the component for a short time while twisting with tweezers will break the component loose.

Leadless Chip Component (surface mount)

Chip components must be replaced with identical chips due to critical foil track spacing. There are no holes in the board to mount standard transistors or diodes. Some chips capacitor or resistor board solder pads may have holes through the board, however the hole diameter limits standard resistor replacement to 1/8 watt. Standard capacitor may also be limited for the same reason. It is recommended that identical components be used.

Chip resistor have a three digit numerical resistance code - 1st and 2nd significant digits and a multiplier.

Example: 162 = 1600 or 1.6kΩ resistor, 0 = 0Ω (jumper).

Chip capacitors generally do not have the value indicated on the capacitor. The color of the component indicates the general range of the capacitance.

Chip transistors are identified by a two letter code. The first letter indicates the type and the second letter, the grade of transistor.

Chip diodes have a two letter identification code as per the code chart and are a dual diode pack with either common anode or common cathode. Check the parts list for correct diode number.

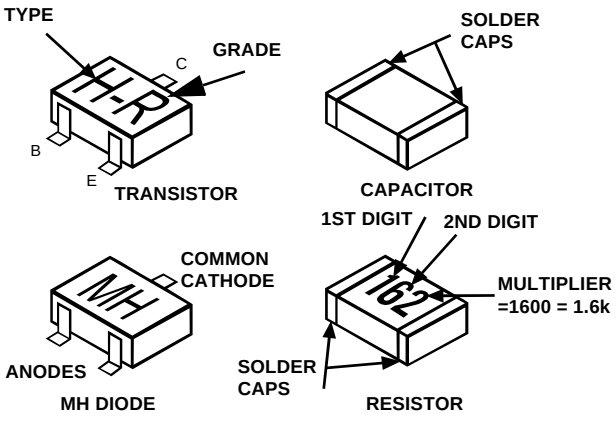
Component Removal

1. Use solder wick to remove solder from component end caps or terminal.
2. Without pulling up, carefully twist the component with tweezers to break the adhesive.
3. Do not reuse removed leadless or chip components since they are subject to stress fracture during removal.

Chip Component Installation

1. Put a small amount of solder on the board soldering pads.
2. Hold the chip component against the soldering pads with tweezers or with a miniature alligator clip and apply heat to the pad area with a 30 watt iron until solder flows. Do not apply heat for more than 3 seconds.

Chip Components



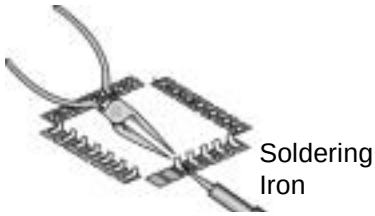
How to Replace Flat-IC

- Required Tools -

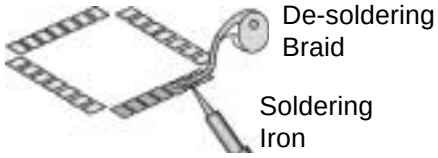
- Soldering iron
- Needle nose pliers
- Wire cutters (sharp & small)
- De-solder braids
- Magnifier

1. Cut the pins of a defective IC with wire cutters. Remove IC from board. If IC is glued to the board, heat the IC and release the IC. See Note above.

2. Using soldering iron and needle nose pliers remove the IC pins from the board.



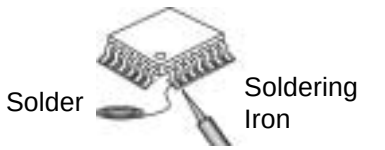
3. Using de-soldering braid and soldering iron remove solder from affected are on board (pads).



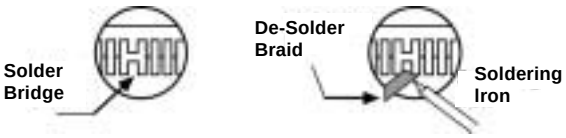
4. Position the new Flat-IC in place (apply the pins of the Flat-IC to the soldering pads where the pins need to be soldered). Determine the positions of the soldering pads and pins by correctly aligning the polarity symbol. Solder pin #1 first, align the IC.

Solder the pin opposite to pin #1. This will assist positioning the IC.

5. Solder all pins to the soldering pads using a fine tipped soldering iron.



6. Check with a magnifier for solder bridge between the pins or for dry joint between pins and soldering pads. To remove a solder bridge, use a de-solder braid as shown in the figure below.



Service Notes (Continued)

IMPORTANT: To protect against possible damage to the solid state devices due to arcing or static discharge, make certain that all ground wires and CTR DAG wire are securely connected.

CAUTION: The power supply circuit is above earth ground and the chassis cannot be polarized. Use an isolation transformer when servicing the Receiver to avoid damage to the test equipment or to the chassis. Connect the test equipment to the proper ground (⏚) or (⏚) when servicing, or incorrect voltages will be measured.

WARNING: This Receiver has been designed to meet or exceed applicable safety and X-ray radiation protection as specified by government agencies and independent testing laboratories.

To maintain original product safety design standards relative to X-ray radiation and shock and fire hazard, parts indicated with the symbol ⚠ on the schematic must be replaced with identical parts. Order parts from the manufacturer's parts center using the parts numbers shown in this service manual, or provide the chassis number and the part reference number.

For optimum performance and reliability, all other parts should be replaced with components of identical specification.

About lead free solder (PbF)

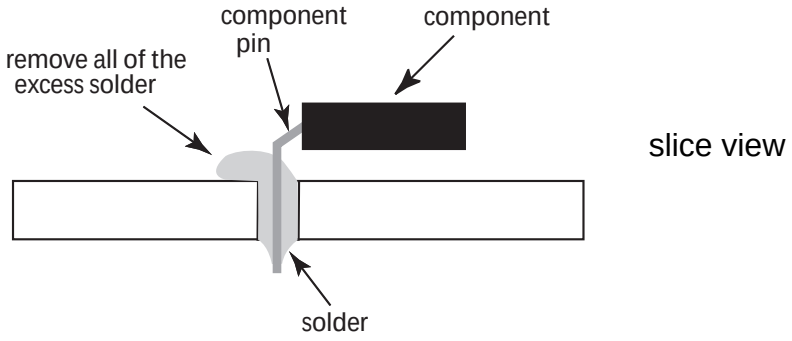
Note: Lead is listed as (Pb) in the periodic table of elements.
In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder.
The Lead Free Solder used in our manufacturing process and discussed below is Sn(Tin)+Ag(Silver) + Cu(Copper).

This model uses Pb Free solder in it's manufacture due to environmental conservation issues.

PCBs manufactured using lead free solder will have the PbF within a leaf Symbol PbF stamped on the front of PCB.

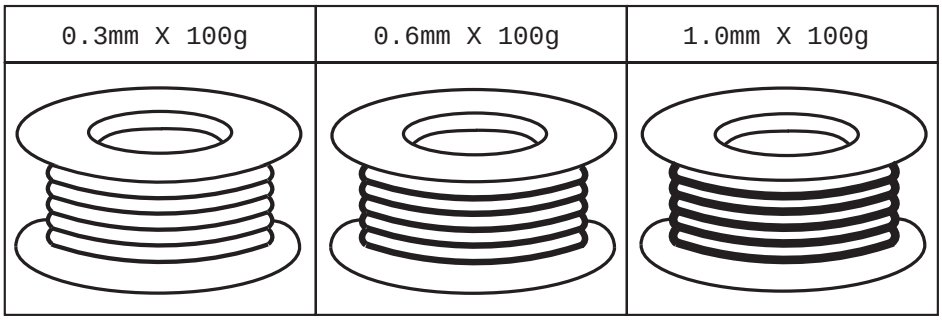
Caution

- Pb free solder has a higher melting point than standard solder. Typically the melting point is 30 ~ 40 °C higher. Please use a high temperature soldering iron and set it to 350 ± 5°C.
- Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C). If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.
- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)



Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. Although, this product can be used only Sn+Ag+Cu(tin, silver, copper) solder



GENERAL SPECIFICATIONS

G-1	**TV System**	CRT	CRT Size / Visual Size	27 inch / 676.0mmV
			CRT Type	Normal
			Deflection	108 degree
			Magnetic Field BV/BH	+0.45G/0.18G
		Color System		NTSC
		Speaker		2Speaker
			Position	Front
			Size	2.0 x 3.5 Inch
			Impedance	8 ohm
		Sound Output	MAX	1.5 + 1.5 W
			10%(Typical)	1.0 + 1.0 W
		NTSC3.58+4.43 /PAL60Hz		No
G-2	**Tuning System**	Broadcasting System		US System M
		Tuner and Receive CH	System	1Tuner
			Destination	USA(W/ CATV)
			Tuning System	F-Synth
			Input Impedance	VHF/UHF 75 ohm
			CH Coverage	2 - 69, 4A, A-5 - A-1, A - I, J - W, W+1 - W+84
		Intermediate Frequency	Picture(FP)	45.75MHz
			Sound(FS)	41.25MHz
			FP-FS	4.50MHz
		Preset CH		No
		Stereo/Dual TV Sound		Yes
		Tuner Sound Muting		Yes
G-3	**Power**	Power Source	AC	120V AC 60Hz
			DC	
		Power Consumption	at AC	
				125 W at AC 120 V 60 Hz
			Stand by (at AC)	3 W at AC 120 V 60 Hz
			Per Year	-- kWh/Year
		Protector	Power Fuse	Yes
G-4	**Regulation**		Safety	UL
			Radiation	FCC
			X-Radiation	DHHS
G-5	**Temperature**		Operation	+0oC ~ +40oC
			Storage	-20oC ~ +60oC
G-6	**Operating Humidity**			Less than 80% RH

GENERAL SPECIFICATIONS

G-7	**On Screen Display**	Menu			Yes
			Menu Type		Picture(Matsushita Type)
			Picture		Yes
				Contrast(Picture)	Yes
				Brightness	Yes
				Color	Yes
				Tint	Yes
				Sharpness	Yes
				Normal	Yes
			Audio		Yes
				Bass	Yes
				Treble	Yes
				Balance	Yes
				Normal	Yes
				Mode	Yes
				AI Sound On/Off	Yes
			CH Set Up		Yes
				Language	Yes
				Mode	Yes
				Auto Program	Yes
				Manual Program	Yes
				CC	Yes
			Timer		Yes
			Lock		Yes
			Exit		Yes
				CH Label	No
				Favorite CH	No
				Component DVD/DTV	No
			Control Level		Yes
				Volume	Yes
				Brightness	Yes
				Contrast(Picture)	Yes
				Color	Yes
				Tint	Yes
				Sharpness	Yes
				Tunning	No
				Bass	Yes
				Treble	Yes
				Balance	Yes
				Back Light	No
			Stereo, SAP, Stereo SAP		Yes
			Video(Aux)		Yes
			Component		No
			Channel(TV/Cable)		Yes
			CH Label		No
			Sound Mute		Yes
			V-chip Rating		Yes
G-8	**OSD Language**				English French Spanish
G-9	**Clock and Timer**	Sleep Timer		Max Time	120 Min
				Step	10 Min
		On/Off Timer		Program(On Timer / Off Timer)	No
		Wake Up Timer			No
		Timer Back-up (at Power Off Mode)		more than	-- Min Sec

GENERAL SPECIFICATIONS

G-10	**Remote Control**	Unit		RC-GP
		Glow in Dark Remocon		No
		Format		KASEIKYO
		Custom Code		08-00 h
		Power Source	Voltage(D.C) UM size x pcs	3V UM-3(AA) x 2 pcs
		Total Keys		20 Keys
		Keys	Power	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			100	No
			CH Up(UP)	Yes
			CH Down(DOWN)	Yes
			Volume Up(Right)	Yes
			Volume Down(Left)	Yes
			TV/Caption/Text	No
			CH1/CH2	No
			TV/Video(TV/AV)	Yes
			R-TUNE(Quick View)	Yes
			Sleep	No
			Recall(Call)	Yes
			Reset	No
			Menu	No
			Enter	No
			Mute	Yes
			Action	Yes
			Exit	No
			MTS(Audio Select)	No
			Set +	No
			Set -	No
G-11	**Features**	Auto Degauss		Yes
		Auto Shut Off		Yes
		Canal+		No
		CATV		Yes
		Anti-theft		No
		Rental		No
		Memory(Last CH)		Yes
		Memory(Last Volume)		Yes
		V-Chip		Yes
			Type	USA, ORION Type
		BBE		No
		Auto Search		No
		CH Allocation		No
		SAP		Yes
		Tone Control		Yes
		Channel Lock		No
		Just Clock Function		No
		Game Position		No
		CH Label		No
		VM Circuit		No
		Full OSD		No
		Premiere		No
		Comb Filter		Yes 2 Lines
		Auto CH Memory		Yes
		Hotel Lock		No
		Closed Caption		Yes
		AI Sound		Yes
		Surround		No
		FBT Leak Test Protect		Yes
		Energy Star		Yes
		Power On Memory		Yes
		Favorite CH		No

GENERAL SPECIFICATIONS

G-12	**Accessories**	Owner's Manual		Language	English/Spanish
				w/Guarantee Card	Yes
		Remote Control Unit			Yes
		Rod Antenna			No
				Poles	
				Terminal	
		Loop Antenna			No
				Terminal	
		U/V Mixer			No
		DC Car Cord (Center+)			No
		Guarantee Card			No
		Warning Sheet			No
		Circuit Diagram			No
		Antenna Change Plug			No
		Service Facility List			No
		Important Safeguard			No
		Dew/AHC Caution Sheet			No
		AC Plug Adapter			No
		Quick Set-up Sheet			No
		Battery			Yes
				UM size x pcs	UM3(AA) x 2
				OEM Brand	Yes
		AC Cord			No
		AV Cord (2Pin-1Pin)			No
		Registration Card			No
		Information Sheet			No
		PTB Sheet			No
		300 ohm to 75 ohm Antenna Adapter			No
G-13	**Interface**	Switch	Front	Power	Yes
				System Select	No
				Main Power SW	No
				Sub Power	No
				CH Up(UP)	Yes
				CH Down(DOWN)	Yes
				Volume Up(Right)	Yes
				Volume Down(Left)	Yes
				ACTION=Vol Up+Vol Down	Yes
			Rear	AC/DC	No
				TV/CATV Selector	No
				Degauss	No
				Main Power SW	No
		Indicator		Power	No
				Stand-by	No
				On Timer	No
		Terminals	Front	Video Input	RCA
				Audio Input	RCA x 2
				Other Terminal	No
			Rear	Video Input(Rear1)	RCA
				Video Input(Rear2)	No
				Audio Input(Rear1)	RCA x 2
				Audio Input(Rear2)	No
				Video Output	RCA
				Audio Output	RCA x 2
				S-Input	Yes
				Component	No
				Diversity	No
				Ext Speaker	No
				DC Jack 12V(Center +)	No
				VHF/UHF Antenna Input	F Type
				AC Outlet	No
G-14	**Set Size**			Approx. W x D x H (mm)	650 x 500.5 x 571.5
G-15	**Weight**			Net (Approx.)	36.5kg (80.5 lbs)
				Gross (Approx.)	40.5Kg (89.3 lbs)
G-16	**Carton**		Master Carton		No
				Content	---- Sets
				Material	-- /--
				Dimensions W x D x H(mm)	-- x -- x --
				Description of Origin	No
			Gift Box		Yes
				Material	Double/Brown
				Dimensions W x D x H(mm)	731 x 580 x 665
				Design	As per Buyer's
				Description of Origin	Yes
			Drop Test		Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
				Height (cm)	31
			Container Stuffing		192 Sets/40' container

GENERAL SPECIFICATIONS

G-17	**Material**	Cabinet	Cabinet Front	PS 94V0 DECABROM
			Cabinet Rear	PS 94V0 DECABROM
		PCB	Non-Halogen Demand	No
			Eyelet Demand	Yes
G-18	**Environment**	Pb Free	Lead-free Solder	Yes
		Cd Free		No

DISASSEMBLY INSTRUCTIONS

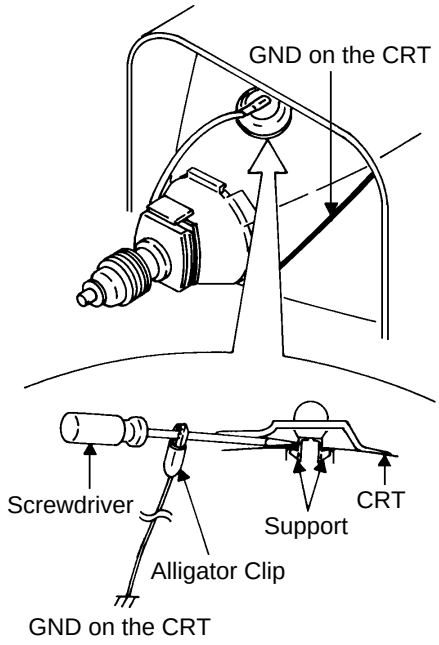
1. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

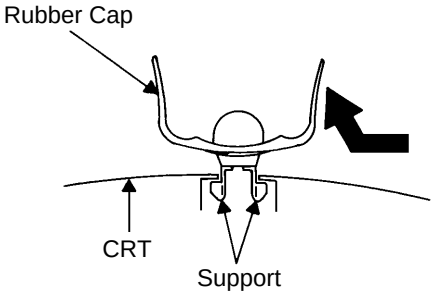
* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap.
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.



2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support.



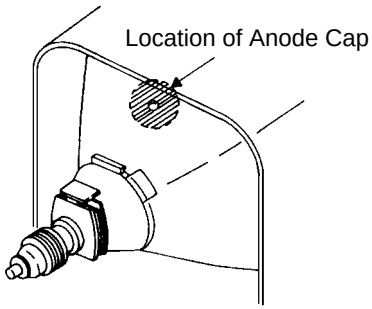
3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

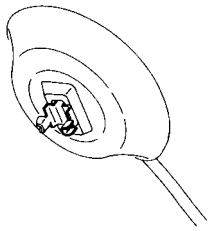
1. Clean the spot where the cap was located with a small amount of alcohol.



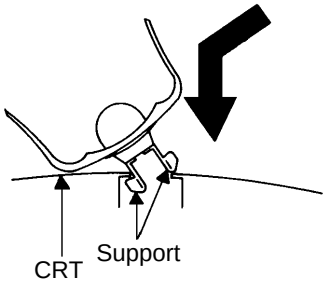
NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap.



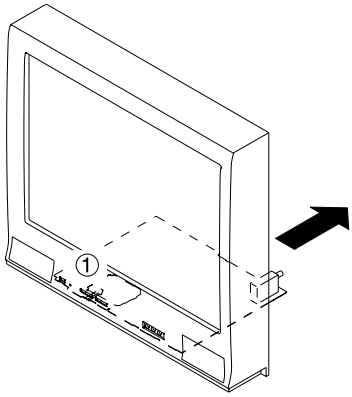
4. Insert one end of the Anode Support into the anode button, then the other as shown in the figure below.



5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

2. NOTE FOR THE REMOVAL OF THE MAIN PCB

When the removal of the Main PCB, remove the hook ① first, then draw it in the direction of the arrow.



SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.
To enter the Service Mode, press both set key and remote control key for more than 1 second.

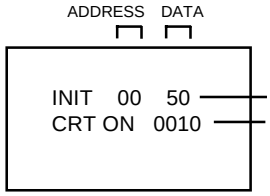
Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	User Reset. NOTE: If you set a factory initialization, the memories are reset such as the channel setting, and the POWER ON total hours.
VOL. (-) MIN	3	Remocon code selection. NOTE: If you perform the remocon code selection, the remocon cannot be used. So, do not select the remocon code for the normal servicing.
VOL. (-) MIN	6	POWER ON total hours is displayed on the screen. Refer to the "CONFIRMATION OF HOURS USED". Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

CONFIRMATION OF HOURS USED

POWER ON total hours can be checked on the screen. Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to "0".

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 1 second.
3. After the confirmation of using hours, turn off the power.



Initial setting content of MEMORY IC.
POWER ON total hours.
= (16 x 16 x 16 x thousands digit value)
+ (16 x 16 x hundreds digit value)
+ (16 x tens digit value)
+ (ones digit value)

FIG. 1

WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: No need setting for after INI 0F due to the adjustment value.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	50	04	4A	4C	57	B3	24	7B	03	0C	AA	50	DC	3D	00	03

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 1 second. ADDRESS and DATA should appear as FIG 1.
3. ADDRESS is now selected and should "blink". Using the CH. UP/DOWN button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press VOL. UP/DOWN button to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using VOL. UP/DOWN button until required DATA value has been selected.
6. Pressing CH. UP/DOWN button will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input. **After the data input, do the User Reset.**
9. Turn POWER on.
10. Press both VOL. DOWN button on the set and Channel button **(1)** on the remote control for more than 1 second.
11. After the finishing of the initializing of shipping, the unit will turn off automatically.

The unit will now have the correct DATA for the new MEMORY IC.

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor for a heat sink, apply the silicon grease **(YG6260M)** on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)
- **The adjustments are needed for each mode, RF mode and AV mode. Perform the adjustments refering each adjustment items.**

Prepare the following measurement tools for electrical adjustments.

1. Oscilloscope
2. Digital Voltmeter
3. Pattern Generator

On-Screen Display Adjustment

1. In the condition of NO indication on the screen. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control for more than 1 second to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

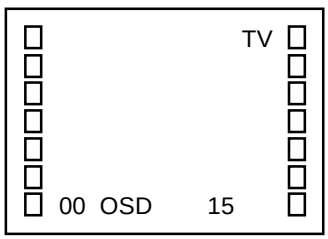


Fig. 1-1

2. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
3. Press the ACTION button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	16	CONTRAST CENT
01	CUT OFF	17	CONTRAST MAX
04	H.VCO	18	CONTRAST MIN
05	H.PHASE	19	COLOR CENT
06	V.SIZE	20	COLOR MAX
07	V.SHIFT	21	COLOR MIN
08	R.DRIVE	22	TINT
09	B.DRIVE	23	SHARPNESS
10	R.BIAS	24	FM LEVEL
11	G.BIAS	25	LEVEL
12	B.BIAS	26	SEPARATION 1
13	BRIGHT CENT	27	SEPARATION 2
14	BRIGHT MAX	28	TEST MONO
15	BRIGHT MIN	29	TEST STEREO

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: CONSTANT VOLTAGE (AV)

1. Place the set with Aging Test for more than 15 minutes.
2. Using the remote control, set the brightness and contrast to normal position.
3. Set condition is AV MODE without signal.
4. Connect the digital voltmeter to the **TP401**.
5. Adjust the **VR502** until the digital voltmeter is 122 ± 0.5V.

2-2: CUT OFF (RF)

1. Adjust the unit to the following settings. R.DRIVE=64, B.DRIVE=64, R.BIAS=64, G.BIAS=64, B.BIAS=64, BRIGHTNESS=90, CONTRAST=100.
2. Place the set with Aging Test for more than 15 minutes.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
4. Adjust the **Screen Volume** until a dim raster is obtained.

2-3: WHITE BALANCE (RF)

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(10)** on the remote control to select “R. BIAS”.
5. Press the CH. UP/DOWN button on the remote control to select the “R. BIAS”, “G. BIAS”, “B. BIAS”, “R. DRIVE” or “B. DRIVE”.
6. Adjust the VOL. UP/DOWN button on the remote control to whiten the R. BIAS, G. BIAS, B. BIAS, R. DRIVE, and B. DRIVE at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white color is looked like a white.

2-4: FOCUS (RF)

1. Receive a broadcast.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

2-5: HORIZONTAL PHASE (RF)

1. Receive the center cross signal from the Pattern Generator.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(05)** on the remote control to select "H.PHAS".
3. Press the VOL. UP/DOWN button on the remote control until the right and left screen size of the vertical line becomes the same.

2-6: HORIZONTAL SIZE (RF)

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the **VR404** until the rectangle on the center of the screen becomes square.
4. Receive a broadcast and check if the picture is normal.

ELECTRICAL ADJUSTMENTS

2-7: VERTICAL SIZE (RF)

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the adjustment control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V.SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the rectangle on the center of the screen becomes square.
5. Receive a broadcast and check if the picture is normal.

2-8: VERTICAL SHIFT/VERTICAL LINEARITY (RF)

1. Receive the center cross signal from the Pattern Generator.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V.SFT".
3. Check if the step No. V. SHIFT is “02”.
4. Adjust the **VR401** until the horizontal line becomes fit to the notch of the shadow mask.
5. Adjust the **VR402** until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-9: OSD HORIZONTAL (RF)

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-1)**

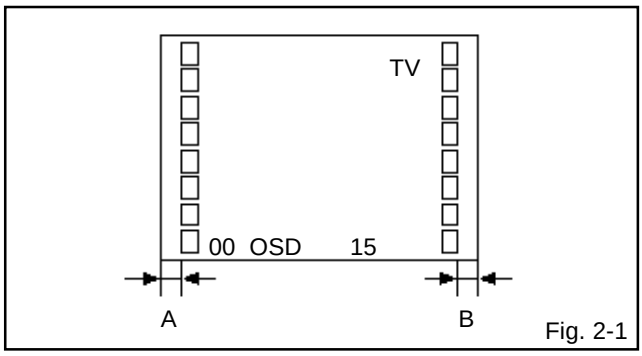


Fig. 2-1

2-10: PARABOLA CORR (RF)

1. Receive the crosshatch signal from the Pattern Generator.
2. Adjust the **VR403**, so that the 4th length line becomes straight from the outside of the right and left.

2-11: LEVEL (RF)

1. Receive the VHF HIGH (70dB).
2. Connect the AC voltmeter to **pin 6 of CP601**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(25)** on the remote control to select "LEVEL".
4. Press the VOL. UP/DOWN button on the remote control until the AC voltmeter is 80 ± 2mV.

2-12: SEPARATION 1, 2 (RF)

Please do the method (1) or method (2) adjustment.

Method (1)

1. Set the multi-sound signal generator for each different L-ch and R-ch frequency (Ex. L-ch=2KHz, R-ch=400Hz) and receive the RF.
2. Connect the oscilloscope to the **Audio Out Jack**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select “SEP 1”.
4. Press the VOL. UP/DOWN button on the remote control to adjust it until the audio output wave becomes a fine sine wave.
5. Press the CH UP button once the set to "SEP 2" mode. Then perform the above adjustment 4.

Method (2)

1. Set the multi-sound signal generator L-ch=1KHz, R-ch =Non input and receive the RF.
2. Connect the oscilloscope to the **Audio Out Jack (R-ch)**.
3. Press the AUDIO SELECT button on the remote control to set to the stereo mode.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select “SEP 1”.
5. Press the VOL. UP/DOWN button on the remote control to adjust it until the R-ch output becomes minimum.
6. Set the multi-sound signal generator L-ch=Non input, R-ch=1KHz and receive the RF.
7. Connect the oscilloscope to the **Audio Out Jack (L-ch)**.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(27)** on the remote control to select “SEP 2”.
9. Press the VOL. UP/DOWN button on the remote control to adjust it until the L-ch output becomes minimum.

2-13: BRIGHTNESS MANUAL (RF, AV)

1. Receive the black pattern*. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "BRI.CENT".
4. Press the VOL. UP/DOWN button on the remote control until the screen begin to shine.
5. Receive the black pattern*. (Audio Video Input)
6 Press the TV/VIDEO button on the remote to set to the AV mode. Then perform the above adjustment 2~4.

*The Black Pattern means the whole black raster signal. Select the "RASTER" of the pattern generator, set to the OFF position for each R, G and B.

ELECTRICAL ADJUSTMENTS

2-14: SUB TINT/SUB COLOR (RF, AV)

1. Receive the color bar pattern.
2. Connect the oscilloscope to **TP024**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(22)** on the remote control to select "TINT".
4. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes as straight line **(Refer to Fig. 2-2)**
5. Connect the oscilloscope to **TP022**.
6. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(19)** on the remote control to select "COL.CENT".
7. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 120 ± 10% of the white level. **(Refer to Fig. 2-3)**
8. Receive the color bar pattern. (Audio Video Input)
9. Press the TV/VIDEO button on the remote control to set to the AV mode.
10. Connect the oscilloscope to **TP024**.
11. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(22)** on the remote control to select "TINT".
12. Press the VOL. UP/DOWN button on the remote control until the section "B" becomes as straight line **(Refer to Fig. 2-4)**
13. Connect the oscilloscope to **TP022**. Then perform the above adjustments 6~7.

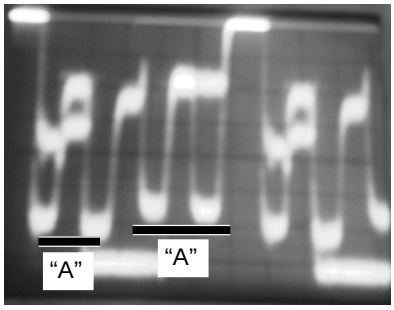


Fig. 2-2

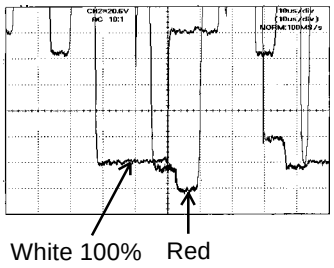


Fig. 2-3

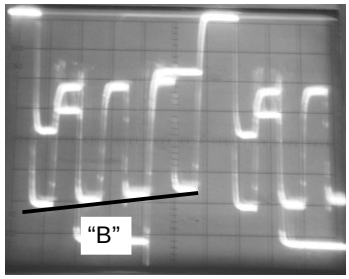


Fig. 2-4

2-15: CONTRAST MANUAL (RF, AV)

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "CONT.MAX".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "70".
3. Receive a broadcast and check if the picture is normal.
4. Press the TV/VIDEO button on the remote to set to the AV mode. Then perform the above adjustment 2~3.

2-16: The center value of adjusting value (Step No.)

Set to the following step no. value for each function. So, the adjusting condition is obtained.

NO.	FUNCTION	STEP NO.
00	OSD H	23
01	CUT OFF	---
04	H.VCO	04
05	H.PHASE	10
06	V.SIZE	37
07	V.SHIFT	02
08	R.DRIVE	64
09	B.DRIVE	64
10	R.BIAS	64
11	G.BIAS	64
12	B.BIAS	64
13	BRIGHT CENT	100
14	BRIGHT MAX	130
15	BRIGHT MIN	70
16	CONTRAST CENT	35
17	CONTRAST MAX	70
18	CONTRAST MIN	25
19	COLOR CENT	55
20	COLOR MAX	70
21	COLOR MIN	00
22	TINT	45
23	SHARPNESS	42
24	FM LEVEL	---
25	LEVEL	27
26	SEPARATION 1	09
27	SEPARATION 2	33
28	TEST MONO	---
29	TEST STEREO	00

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue color.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

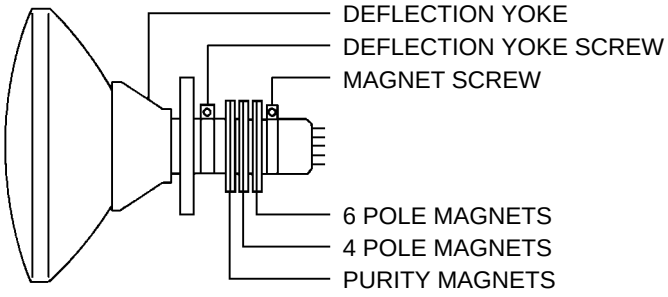


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**

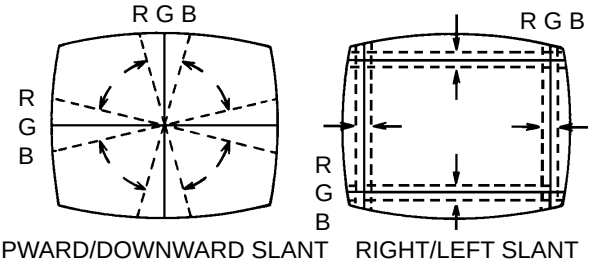
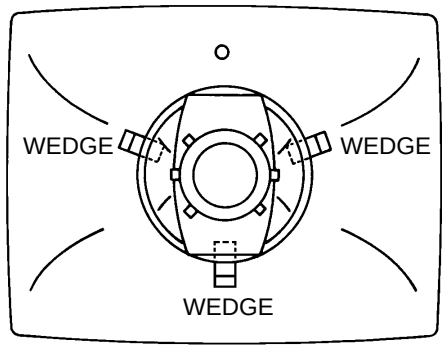


Fig. 3-2-a

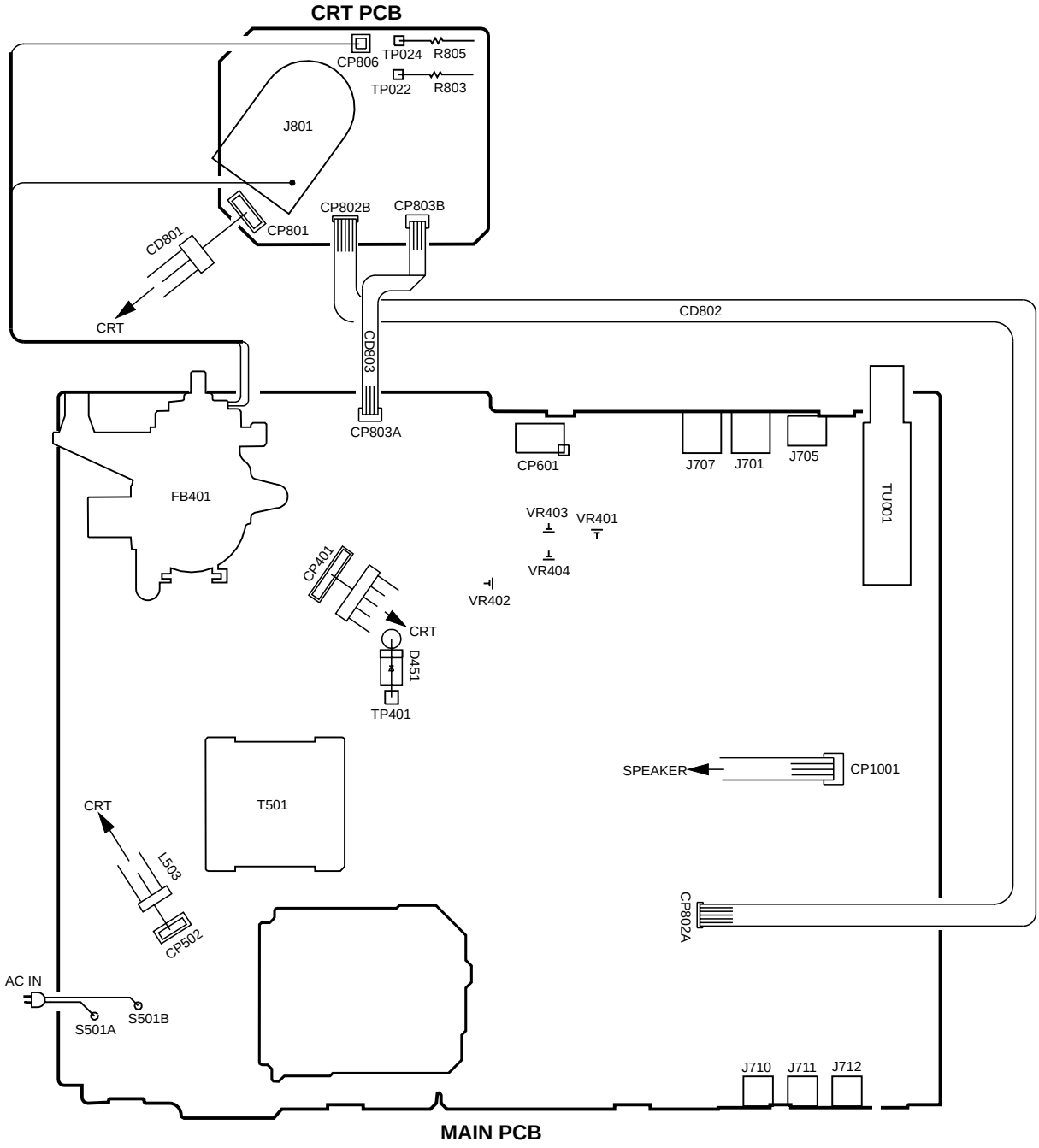


WEDGE POSITION

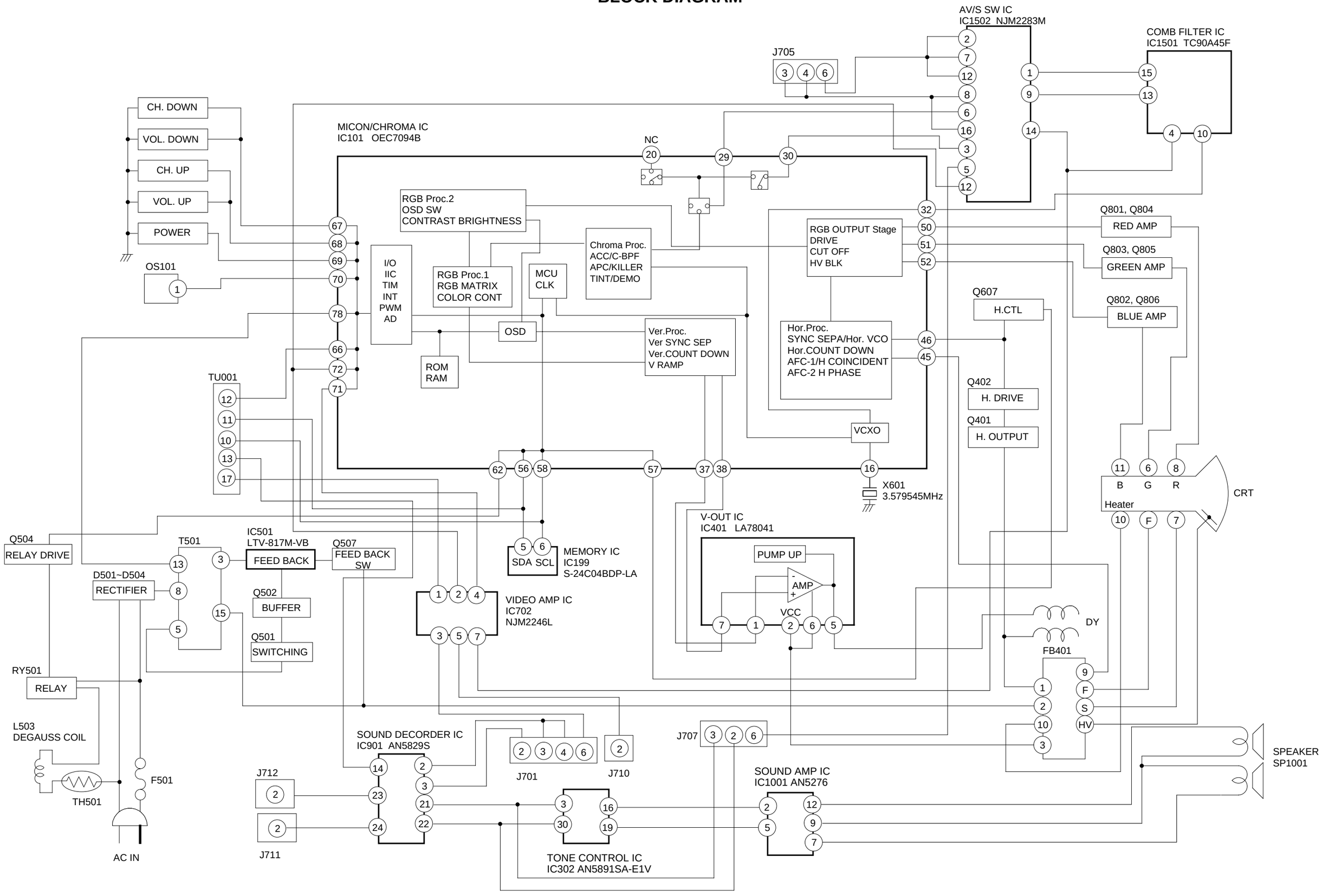
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

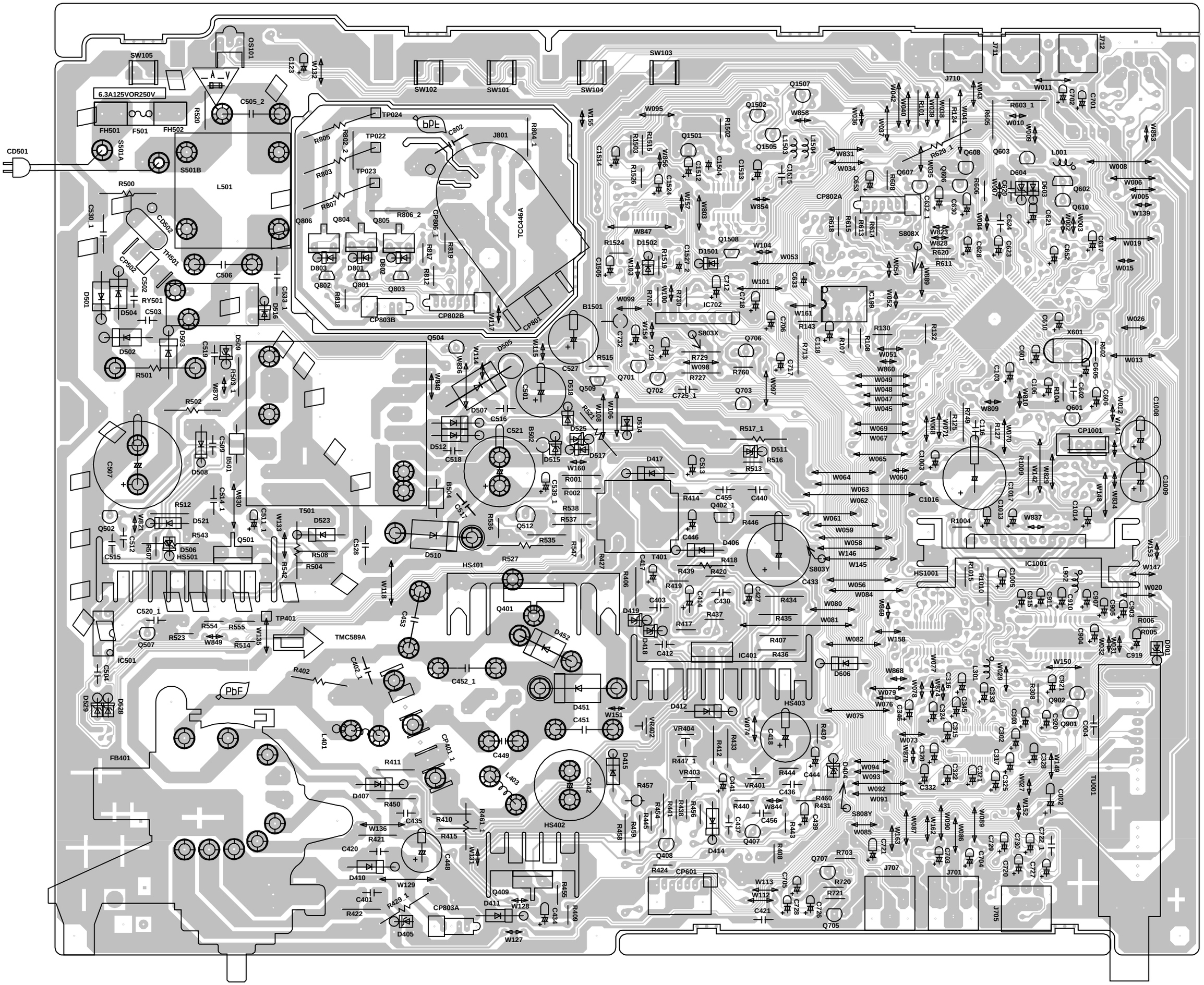
4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



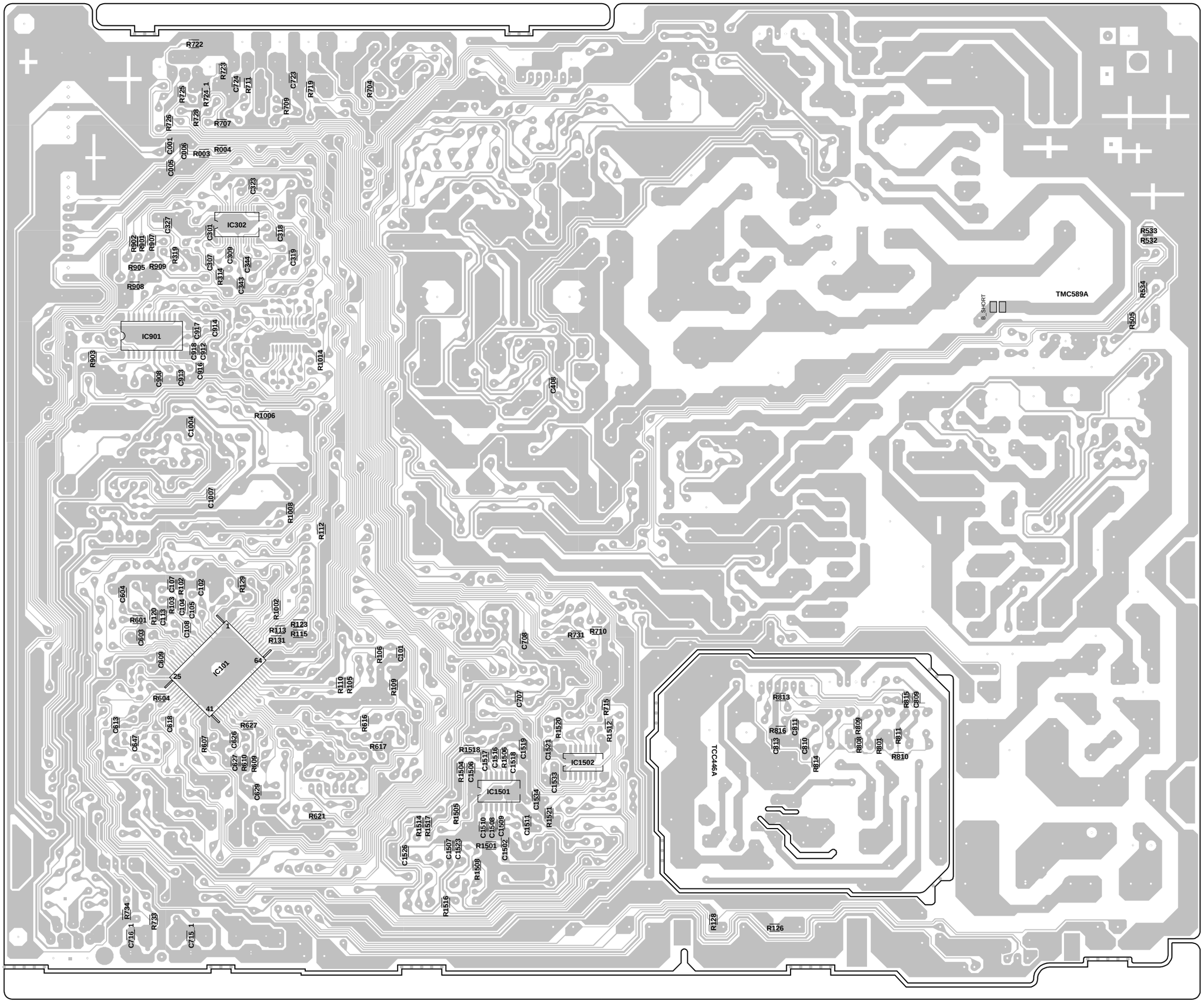
BLOCK DIAGRAM



PRINTED CIRCUIT BOARDS
MAIN/CRT (INSERTED PARTS)
SOLDER SIDE


SW105
SW102
SW101
SW104
SW103
OS101
6.3A125VOR250V
FH501
F501
FH502
CD501
S501A
S501B
L501
R500
CD502
TH501
CP502
C502
RY501
D501
D504
C503
D502
D503
R501
C519
D509
R503_1
W870
R502
C507
D508
C509
B501
R520
C505_2
C123
W132
TP024
TP022
TP023
R805
R802_2
R803
R807
Q806
Q804
Q805
R806_2
CP806_1
D803
D801
D802
Q802
Q801
Q803
R818
R817
R819
R812
CP803B
CP802B
W117
CP801
TCC446A
J801
C802
R804_1
W155
B1501
C527
R515
Q509
Q701
Q504
D505
W114
W836
W115
C501
D518
W108
W106
R521
D525
D517
D514
D507
C516
C521
D512
C518
B502
D515
W160
R001
R002
C539_1
R538
R537
R536
Q512
R535
R547
R527
D510
C517
B504
C528
T501
D523
R508
R504
W133
R542
Q501
C511_1
W830
R514
R543
D506
HS501
R507
W821
R512
Q502
C512
C515
C520_1
Q507
R523
R554
R555
W849
TP401
W135
TMC589A
IC501
C504
D529
D528
PbF
R402
C402_1
C453
HS401
Q401
W118
C452_1
D452
D451
W151
C451
L401
CP401_1
C449
L403
FB401
R411
D407
R450
C435
W136
R421
C420
D410
W129
C401
R422
R429_1
D405
CP803A
D411
W128
W127
C434
R455
R409
HS402
C442
R461_1
R415
R410
C448
W131
D415
R457
R454
R445
R458
R459
R441
R438
R456
C441
R412
R433
VR402
VR404
R447_1
VR403
VR401
C436
R440
W844
C456
C437
Q407
D414
R460
R431
C439
R443
R408
S808Y
W085
W087
W162
W090
W086
W089
C721
C729
C730
C720
C727
C722_1
W163
J707
J701
J705
Q707
R703
R720
R721
Q705
C705
C728
C726
C421
W113
W112
CP601
R424
D417
C513
R414
C455
C440
Q402_1
R446
C446
D406
R418
R439
R420
C433
S803Y
T401
C417
R406
R427
R419
C414
C430
C403
D419
D418
C412
R417
R437
R407
R436
R434
R435
IC401
HS403
D606
W868
W869
W158
W082
W081
W080
W084
W056
W146
W145
W059
W058
W061
W062
W063
W064
W060
W065
W067
W069
W045
W047
W048
W049
W860
W051
W092
W091
W093
W094
W075
W076
W079
W078
W077
W074
W073
W875
C418
D404
C444
R444
R430
C332
C320
C322
C321
C325
C317
C303
C302
C328
C316
C345
C324
C315
C346
C333
L301
W029
W027
W152
W149
C002
TU001
C004
Q901
C920
Q902
C921
R308
W150
W889
W828
W823
W824
W831
W034
W035
W037
W036
W042
W040
W039
W038
W041
R101
R124
R605
R603_1
W010
W011
J710
J711
J712
C702
C701
W043
W853
W009
W008
W006
W005
W139
W019
W015
W026
W013
W012
W141
C1008
C1009
W148
W834
W142
W829
R1009
C1017
C1013
C1014
C1016
C1003
W837
R1004
R1010
R1015
IC1001
HS1001
C1005
L902
C910
C911
C915
C907
C905
C903
C904
W032
W031
C919
D001
R006
R005
W153
W147
W020
W809
W810
C116
R749
R125
W071
W070
R127
R1009
C103
C106
C610
X601
C601
C605
C606
C602
Q601
CP1001
R602
W026
W013
W012
W141
C1008
C1009
W148
W834
W142
W829
R1009
C1017
C1013
C1014
C1016
C1003
W837
R1004
R1010
R1015
IC1001
HS1001
C1005
L902
C910
C911
C915
C907
C905
C903
C904
W032
W031
C919
D001
R006
R005
W153
W147
W020
L001
Q602
Q610
W002
W003
C621
C624
C623
C628
C652
C617
W004
C630
C632_1
W007
C622
D603
D604
R606
Q606
Q607
Q608
Q603
R629_1
W035
W034
W831
C653
R608
CP802A
R618
R615
R613
R614
S808X
W828
R620
R611
W889
W054
W052
IC199
W053
W104
Q1508
D1501
D1502
R1519
C1527_2
C712
C718
IC702
W101
C633
C706
R143
C118
R107
R108
R130
R132
W051
W860
W049
W048
W047
W045
W069
W067
W065
W064
W060
W063
W062
W061
W059
W058
W146
W145
W056
W084
W080
W081
W082
W158
W868
W869
W077
W078
W079
W076
W075
W074
W073
W875
W094
W093
W092
W091
W085
W087
W162
W090
W086
W089
W809
W810
C116
R749
R125
W071
W070
R127
R1009
C103
C106
C610
X601
C601
C605
C606
C602
Q601
CP1001
R602
W026
W013
W012
W141
C1008
C1009
W148
W834
W142
W829
R1009
C1017
C1013
C1014
C1016
C1003
W837
R1004
R1010
R1015
IC1001
HS1001
C1005
L902
C910
C911
C915
C907
C905
C903
C904
W032
W031
C919
D001
R006
R005
W153
W147
W020
W150
W889
W828
W823
W824
W831
W034
W035
W037
W036
W042
W040
W039
W038
W041
R101
R124
R605
R603_1
W010
W011
J710
J711
J712
C702
C701
W043
W853
W009
W008
W006
W005
W139
W019
W015

PRINTED CIRCUIT BOARDS
MAIN/CRT (CHIP MOUNTED PARTS)
SOLDER SIDE



MICON/CHROMA/TUNER SCHEMATIC DIAGRAM
(MAIN PCB)

1	CNVSS	41	NC
2	XIN	42	HVCO F/B
3	XOUT	43	AFC FILTER
4	TEST1	44	DEF GND
5	VSS	45	FBP IN
6	MCU VCC	46	H OUT
7	TEST0	47	DEF VCC
8	FILT	48	NC
9	HLT	49	HI VCC
10	VHOLD	50	R OUT
11	CVIN	51	G OUT
12	RESET IN	52	B OUT
13	MCU RESET OUT	53	ACL
14	Y SW OUT	54	NC
15	V/C GND	55	PROTECT
16	3.58 XTAL	56	SDA
17	C-APC	57	H_CTL
18	MCU5.7V REG OUT	58	SCL
19	NC	59	NC
20	CVBS IN3	60	NC
21	AUDIO IN3	61	NC
22	V/C VCC	62	DEGAUSS_H
23	MCU TEST	63	STANDBY_H
24	CVBS IN2	64	VOLUME
25	AUDIO IN2	65	NC
26	CVBS IN1	66	AFT
27	AUDIO IN1	67	KEY1
28	5.7V REG OUT	68	KEY2
29	C(Y/C) IN	69	POWER_ON
30	Y(Y/C) IN	70	REMOCON
31	VREG VCC	71	AV2
32	FSC OUT	72	AV1
33	MONITOR OUT	73	AUDIO_MUTE
34	AUDIO ATT OUT	74	X-RAY
35	AUDIO ATT FILTER	75	IIC_OFF
36	NC	76	ON_TIMER
37	V RAMP F/B	77	SYNC
38	V RAMP OUT	78	POWER FAIL
39	V RAMP CAP	79	X-RAY_TEST
40	8.7V REG OUT	80	EXT_MUTE

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

R.SIGNAL
G.SIGNAL
B.SIGNAL
DEFLECTION SIGNAL
AUDIO SIGNAL
TUNER VIDEO SIGNAL

DEFLECTION/CRT SCHEMATIC DIAGRAM

(MAIN PCB)

(CRT PCB)

FROM/TO MICON/CHROMA/TUNER

CLAMP

G.OUT

R.OUT

B.OUT

V_OUT

ABCL

H_OUT

V_FEEDBACK

H_SYNC

GND

FROM/TO SOUND

GND

TO MICON/CHROMA/TUNER

X-RAY

V-OUT IC IC401 LA78041

THERMAL PROTECTION

PUMP UP

AMP

VCC GND

HS401 763WAA0212

HS402 763WAA0221

HS403 763WAA0181

V-LINER

V-POSI

PIN DRIVE Q409 2SC4159

PIN DRIVE Q408 KTA1266

PIN SW Q407 KTC3198

SIDE PCC

H SIZE

H.OUTPUT Q401 2SD2499

H.DRIVE Q402_1 KTC3227_Y

FB401 43227014R

COL

VIDEO

B+

AFC

HEA

TER

GND

E12

E25

NC

ABL

GND

GND

NC

CP802A 51048-0610

CP803A 51048-0410

CP802B 51048-0610

CP803B 51048-0410

CP801 A2361WV2-2P

CD801 CU822501

V801 M68LWF088X

CP401_1 B06B-DVS

RED AMP Q801 KTC3199_Y

GREEN AMP Q803 KTC3199_Y

BLUE AMP Q802 KTC3199_Y

RED AMP Q804 KTC4217

GREEN AMP Q805 KTC4217

BLUE AMP Q806 KTC4217

J801 ISHS53S

FORCUS

SCREEN

CP806_1

FROM POWER

UNREG+18V

+B

GND

+B TP401

B_SHORT

B+

PCB010 TMC589

PCB110 TCC446

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

R.SIGNAL

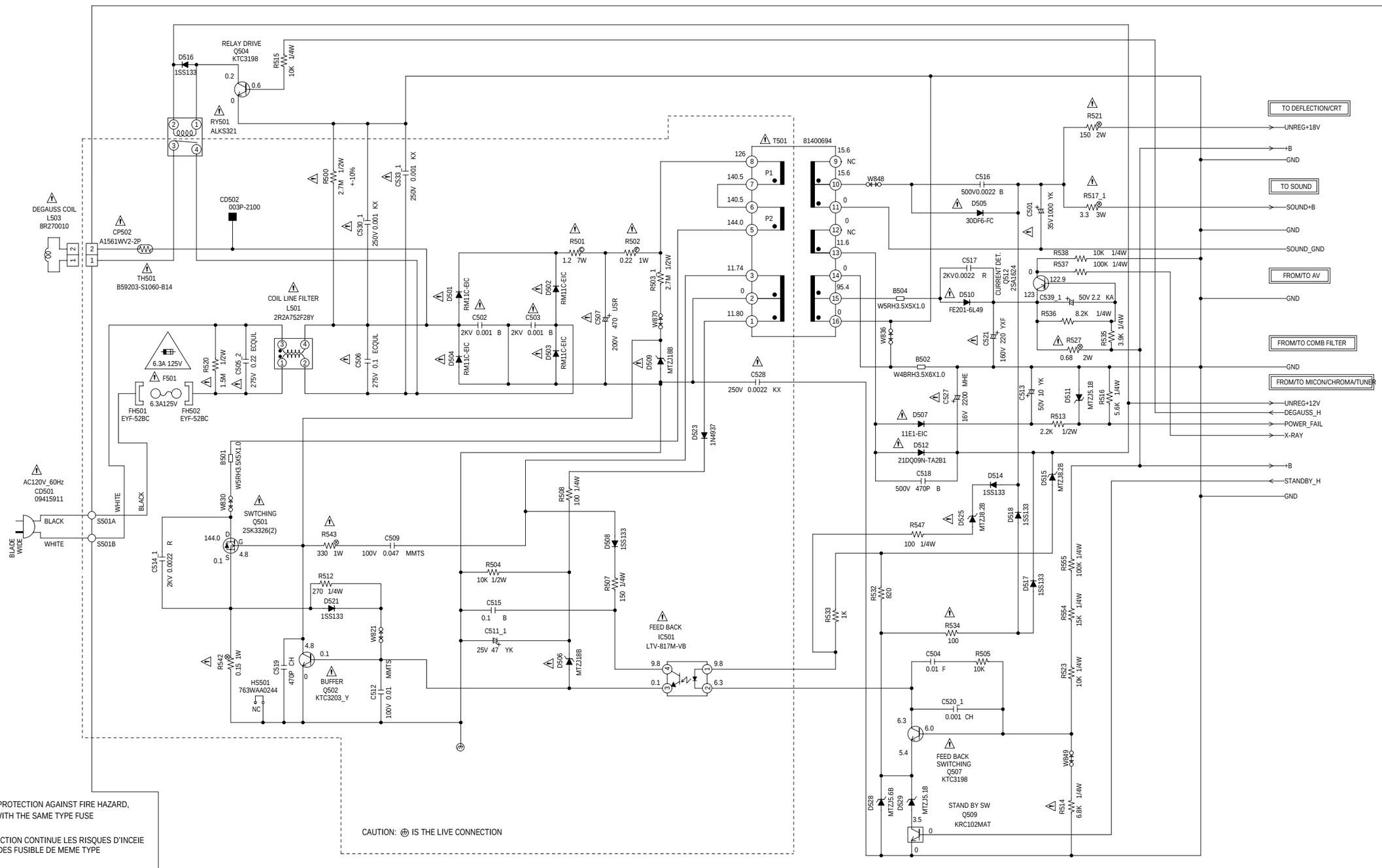
G.SIGNAL

B.SIGNAL

DEFLECTION SIGNAL

POWER SCHEMATIC DIAGRAM

(MAIN PCB)



6.3A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 6.3A 125V(F501).

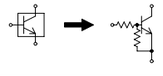
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 6.3A 125V(F501).

CAUTION: ICP501 IS MANUFACTURED BY SKYGATE CO,LTD. TYPE 20N.

CAUTION: ⏚ IS THE LIVE CONNECTION

PCB010
TMC589

CAUTION: DIGITAL TRANSISTOR



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

SOUND SCHEMATIC DIAGRAM
(MAIN PCB)

FROM/TO MICON/CHROMA/TUNER

SCL
SDA
AUDIO_MUTE

FROM/TO DEFLECTION/CRT

GND

FROM/TO AV

REAR_AUDIO_R
REAR_AUDIO_L
FRONT_AUDIO_R
FRONT_AUDIO_L
AUDIO_OUT_R
AUDIO_OUT_L
GND

FROM POWER

SOUND+B
GND
SOUND_GND

FROM/TO MICON/CHROMA/TUNER

P.CON+8V[B]
TU_AUDIO
AUDIO_OUT_L
AUDIO_OUT_R
GND
STEREO+5V

R901 220
R907 56K
R909 56K
R902 220
R903 220K
R905 39K
R908 39K
R1002 18K
R1006 1.8K
R1008 1.8K
R1009 1K 1/4W
R1010 10K 1/4W
R1014 3.9K
R1015 3.9K 1/4W
R308 1K 1/4W
R314 220K
R319 1K

BUFFER Q901 KTA1266
BUFFER Q902 KTA1266

C901 SOUND DECORDER IC AN5829S

C903 50V 4.7 KA
C904 50V 4.7 KA
C905 50V 4.7 KA
C907 25V 10 KA
C908 0.001 B
C910 16V 100 YK
C911 50V 0.33 KA
C912 0.047 B
C913 0.022 B
C914 0.1 F
C915 50V 3.3 KA
C916 0.1 F
C917 0.1 F
C918 0.1 F
C919 50V 10 KA
C920 50V 1 KA
C921 50V 1 KA
C1003 50V 2.2 KA
C1004 0.01 F
C1005 50V 2.2 KA
C1007 0.01 F
C1008 25V 1000 YK
C1009 25V 1000 YK
C1013 25V 100 YK
C1014 16V 47 YK
C1016 35V 2200 YK
C1017 6.3V 47 KA
C301 0.033 B
C302 50V 10 YK
C303 50V 10 YK
C307 0.015 B
C309 0.039 B
C315 50V 0.1 KA
C316 50V 10 YK
C317 50V 10 YK
C319 100P CH
C320 50V 10 YK
C321 50V 1 KA
C322 50V 0.1 KA
C323 0.01 F
C324 50V 10 YK
C325 50V 10 YK
C327 0.01 F
C328 16V 100 YK
C332 50V 10 YK
C343 0.033 B
C344 0.01 B
C345 50V 10 YK
C346 50V 10 YK

L301 100uH 0305
L902 100uH 0305

W829
W834
W837
W853
W874
W875
W868
W869

TONE CONTROL IC IC302 AN8859SA-E1V
PF1 AGC L IN NC NC PF2 PF3 PF4 GND LT LB NC NC BD VD L ONT
MODE control VCC R IN Vref NC NC BB RB RT BLD TD NC NC R OUT SDA SCL
AGC SURR Tone Control Volume Control 2.2K Balance /MUTE

SOUND AMP IC IC1001 AN5276
ATT. ATT.CONT. RIPPLE FILTER
NC CH1 IN RF GND CH2 IN NC CH2 OUT MUTE GND VCC STAND -BY CH1 OUT NC

CP1001 A2502WV2-4P
SP OUT R+ 1
SP OUT L- 2
SP OUT R- 3
SP OUT L+ 4

SPEAKER
8 OHM SP1001 S0509F12-D

HS1001 763WAA0160

PCB010 TMC589

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

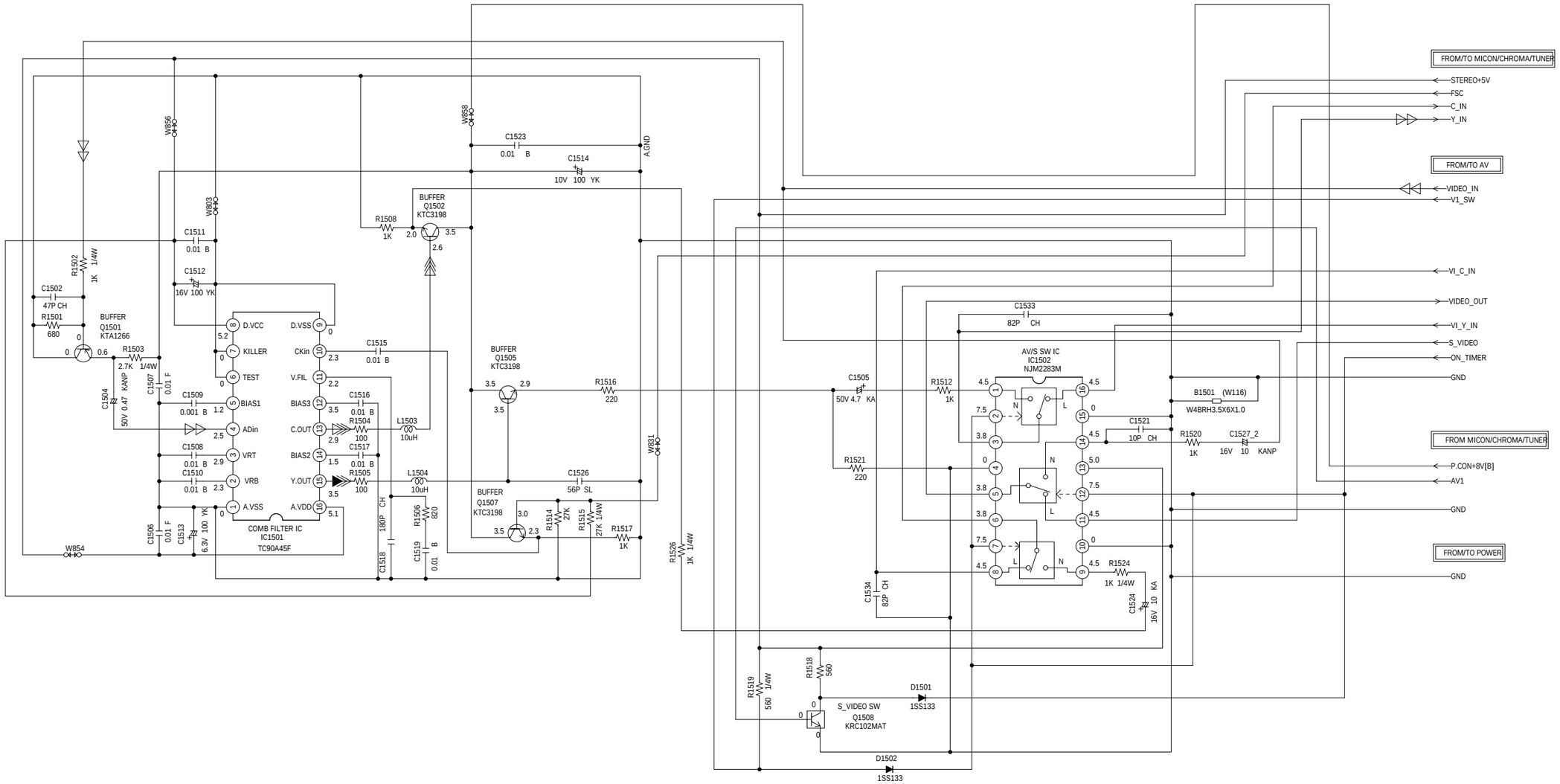
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

⇦ AUDIO SIGNAL

COMBI/FILTER SCHEMATIC DIAGRAM

(MAIN PCB)

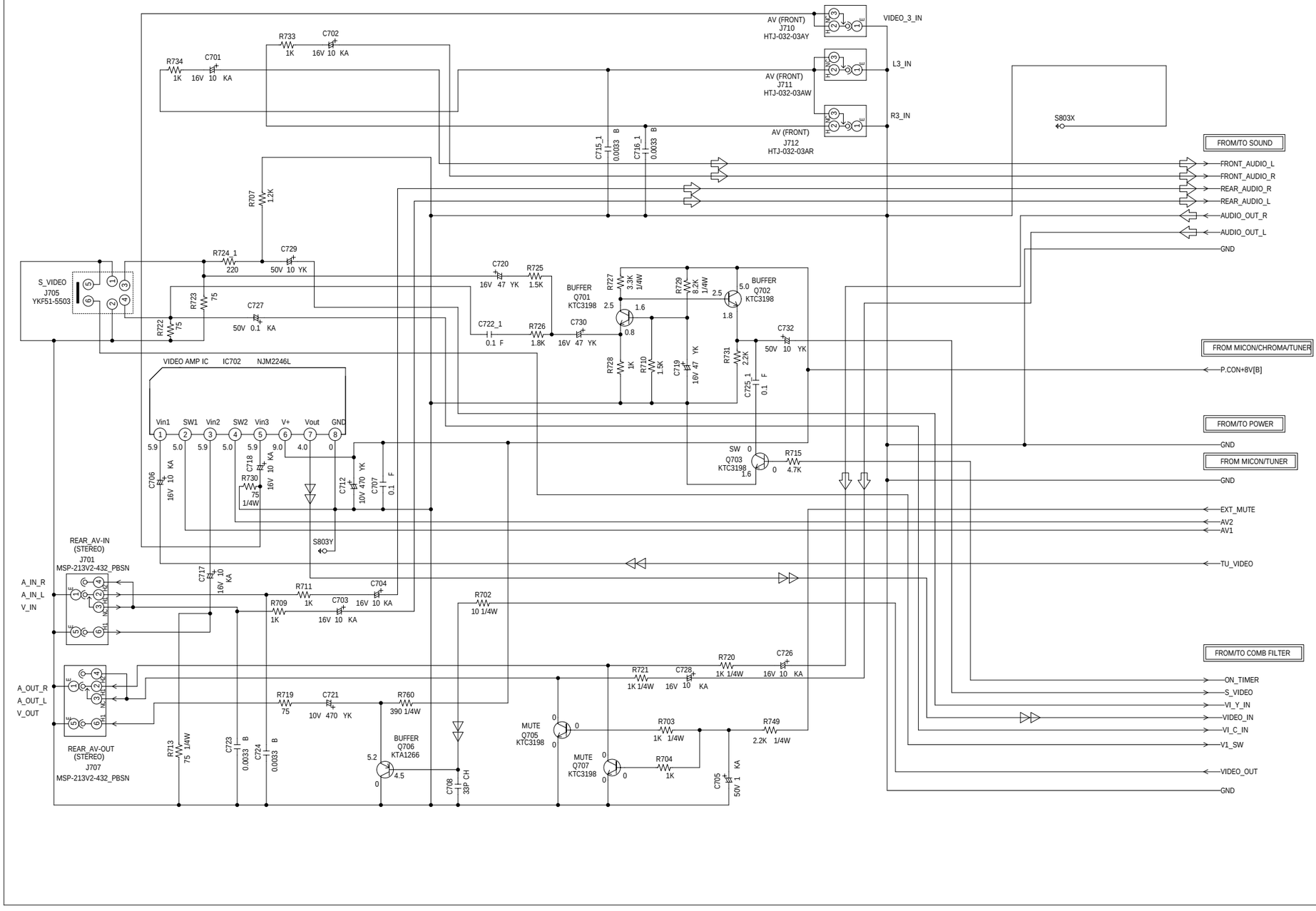


NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

AV SCHEMATIC DIAGRAM

(MAIN PCB)



NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

AUDIO SIGNAL

TUNER VIDEO SIGNAL

VOLTAGE LIST

IC

IC101			
Pin	Volt.	Pin	Volt.
1	0	41	0
2	4.8	42	3.7
3	5	43	3.5
4	4.9	44	0
5	0	45	9
6	4.9	46	6.7
7	0	47	8.4
8	3.1	48	0
9	0	49	8.4
10	0.2	50	5
11	2.8	51	4.9
12	4.9	52	5.1
13	4.9	53	2.8
14	2.5	54	5.1
15	0	55	0
16	3.3	56	5.1
17	2.9	57	0
18	5.5	58	4.8
19	0	59	0
20	1.9	60	0
21	2.3	61	0
22	5.1	62	0
23	0	63	0
24	1.9	64	0
25	2.3	65	0
26	2	66	4.8
27	2.3	67	4.9
28	5.7	68	4.9
29	2.4	69	4.9
30	2.4	70	4.9
31	8.9	71	4.9
32	3	72	4.9
33	5.1	73	4.9
34	3.5	74	1.8
35	2.8	75	4.9
36	0	76	0
37	2.2	77	0
38	3.7	78	4.9
39	4.7	79	0
40	8.8	80	4.8

IC199	
Pin	Volt.
1	0
2	0
3	0
4	0
5	4.8
6	4.8
7	0
8	4.9

IC401	
Pin	Volt.
1	3.9
2	26.1
3	2.2
4	0
5	13
6	26
7	3.9

IC501	
Pin	Volt.
1	9.8
2	8.8
3	0.3
4	9.8

IC702	
Pin	Volt.
1	5.9
2	5
3	5.9
4	5
5	5.9
6	9
7	4
8	0

IC901	
Pin	Volt.
1	0
2	2.3
3	2.3
4	2.2
5	2.2
6	0.4
7	5.1
8	2.4
9	2.4
10	0.4
11	2.3
12	3.4
13	3.7
14	2.6
15	3.6
16	3.7
17	0
18	5
19	5
20	0
21	2.3
22	2.3
23	2.3
24	2.3

IC1001	
Pin	Volt.
1	0
2	0
3	17.6
4	0
5	1
6	0
7	16.8
8	0.3
9	0
10	18.9
11	8.7
12	16.8

IC1501	
Pin	Volt.
1	0
2	2.3
3	2.9
4	2.5
5	1.2
6	0
7	0
8	5.2
9	0
10	2.3
11	2.2
12	3.5
13	2.9
14	1.5
15	3.5
16	5.1

IC1502	
Pin	Volt.
1	4.5
2	7.5
3	3.8
4	0
5	3.8
6	3.8
7	7.5
8	4.5
9	4.5
10	0
11	4.5
12	7.5
13	5
14	4.5
15	0
16	4.5

IC302			
Pin	Volt.	Pin	Volt.
1	4.1	17	4.8
2	1.9	18	4.8
3	4.1	19	4.9
4	0	20	0
5	0	21	0
6	4.1	22	2
7	4.2	23	3
8	4.2	24	4.2
9	0	25	4.1
10	4.2	26	4.1
11	4.2	27	0
12	0	28	0
13	0	29	4.2
14	2	30	4.2
15	2.8	31	8.3
16	0	32	0.6

VOLTAGE LIST

TRANSISTOR

Q402	
Pin	Volt.
B	0.3
C	27
E	0

Q407	
Pin	Volt.
B	3.8
C	7.8
E	3.2

Q408	
Pin	Volt.
B	8.1
C	0.6
E	7.8

Q409	
Pin	Volt.
B	0.6
C	8.2
E	0

Q501	
Pin	Volt.
G	4.8
S	0.1
D	144

Q502	
Pin	Volt.
B	0.1
C	4.8
E	0

Q504	
Pin	Volt.
B	0.6
C	0.2
E	0

Q507	
Pin	Volt.
B	6
C	6.3
E	5.4

Q509	
Pin	Volt.
B	0
C	3.5
E	0

Q512	
Pin	Volt.
B	122.9
C	0
E	123

Q601	
Pin	Volt.
B	5.5
C	8.8
E	4.9

Q602	
Pin	Volt.
B	5.5
C	7.2
E	4.9

Q603	
Pin	Volt.
B	5.5
C	7.2
E	4.9

Q606	
Pin	Volt.
B	8.5
C	11.3
E	7.9

Q607	
Pin	Volt.
B	5.6
C	5
E	6

Q608	
Pin	Volt.
B	8.5
C	11.3
E	7.9

Q610	
Pin	Volt.
B	5.5
C	7.2
E	5

Q701	
Pin	Volt.
B	1.6
C	2.5
E	0.8

Q702	
Pin	Volt.
B	2.5
C	5
E	1.8

Q703	
Pin	Volt.
B	0
C	0
E	1.6

Q705	
Pin	Volt.
B	0
C	0
E	0

Q706	
Pin	Volt.
B	4.5
C	0
E	5.2

Q707	
Pin	Volt.
B	0
C	0
E	0

Q801	
Pin	Volt.
B	3.2
C	100.6
E	2.7

Q802	
Pin	Volt.
B	3.2
C	95.4
E	2.7

Q803	
Pin	Volt.
B	3.2
C	98.4
E	2.7

Q804	
Pin	Volt.
B	6.3
C	130.6
E	5.9

Q805	
Pin	Volt.
B	6.3
C	130.6
E	5.9

Q806	
Pin	Volt.
B	6.3
C	130.6
E	5.9

Q901	
Pin	Volt.
B	2.3
C	0
E	3.2

Q902	
Pin	Volt.
B	2.3
C	0
E	3.2

Q1501	
Pin	Volt.
B	0
C	0
E	0.6

Q1502	
Pin	Volt.
B	2.6
C	3.5
E	2

Q1505	
Pin	Volt.
B	3.5
C	3.5
E	2.9

Q1507	
Pin	Volt.
B	3
C	3.5
E	3.2

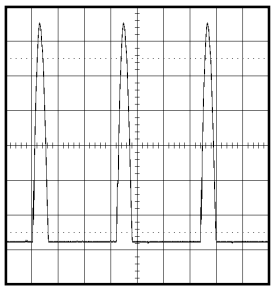
Q1508	
Pin	Volt.
B	0
C	0
E	0

B ..... BASE
C ..... COLLECTOR
E ..... EMITTER

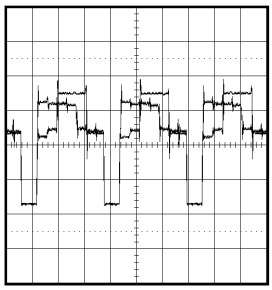
G ..... GATE
S ..... SOURCE
D ..... DRAIN

WAVEFORMS

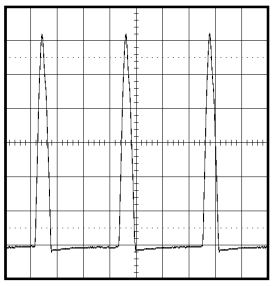
MICON/CHROMA/TUNER



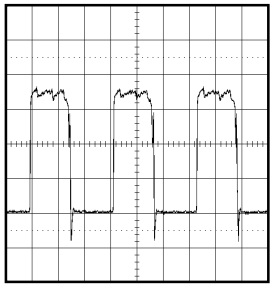
② 20V 20µs/div
R611



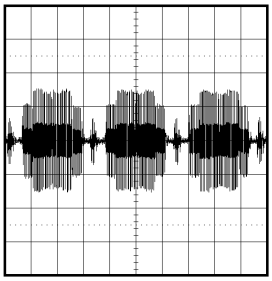
⑦ 1V 20µs/div
IC101 PIN 51(G OUT)



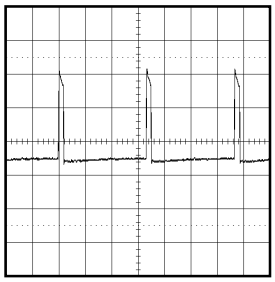
⑰ 200V 20µs/div
Q401



③ 200mV 20µs/div
IC101 PIN 46(H OUT)

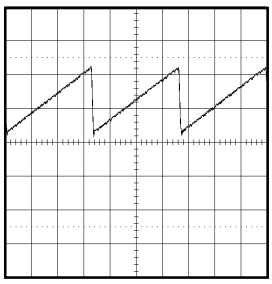


⑧ 200mV 20µs/div
IC101 PIN 30(Y(Y/C) IN)

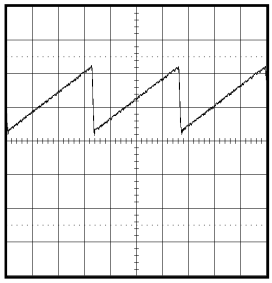


⑱ 10V 5ms/div
IC401 PIN 6

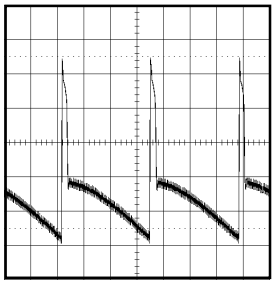
DEFLECTION/CRT



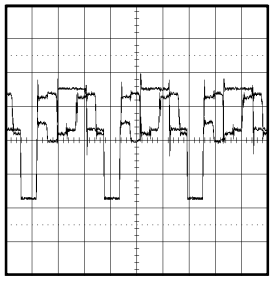
④ 0.5V 5ms/div
IC101 PIN 38(V RAMP OUT)



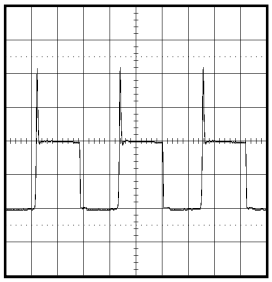
⑭ 0.5V 5ms/div
IC401 PIN 7



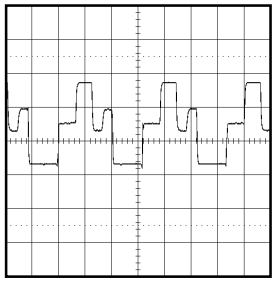
⑲ 10V 5ms/div
CP401 PIN 6



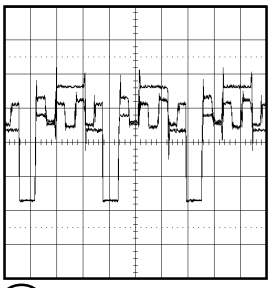
⑤ 1V 20µs/div
IC101 PIN 53(ACL)



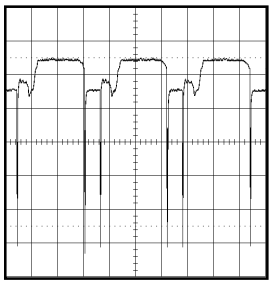
⑮ 20V 20µs/div
T401 PIN 5



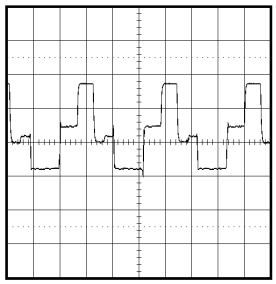
⑳ 50V 20µs/div
R803



⑥ 1V 20µs/div
IC101 PIN 52(B OUT)



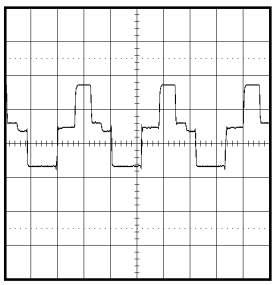
⑯ 2V 20µs/div
T401 PIN 2



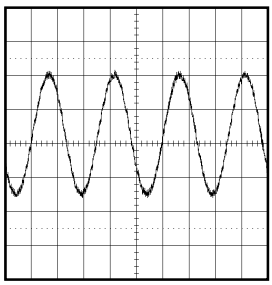
㉑ 50V 20µs/div
Q805

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

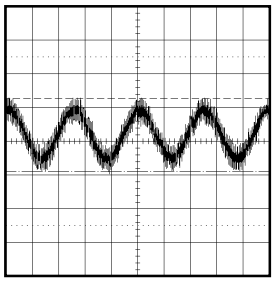


(22) 50V 20µs/div
R807

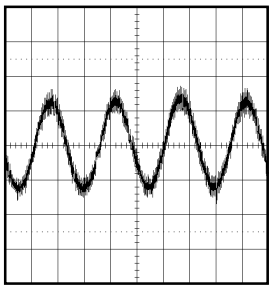


(31) 200mV 1ms/div
R1014

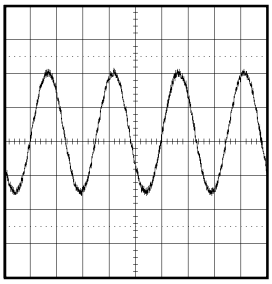
SOUND



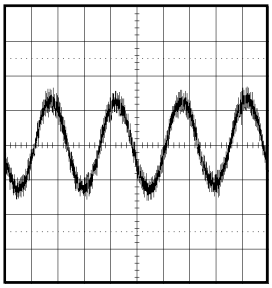
(25) 0.5V 1ms/div
C919



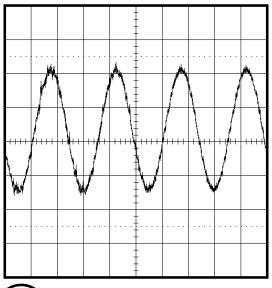
(32) 0.5V 1ms/div
CP1001 PIN 2



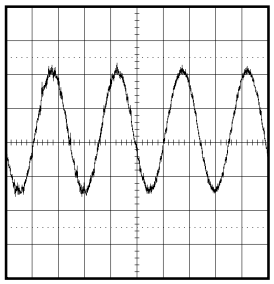
(26) 200mV 1ms/div
IC901 PIN 22



(33) 0.5V 1ms/div
C1008



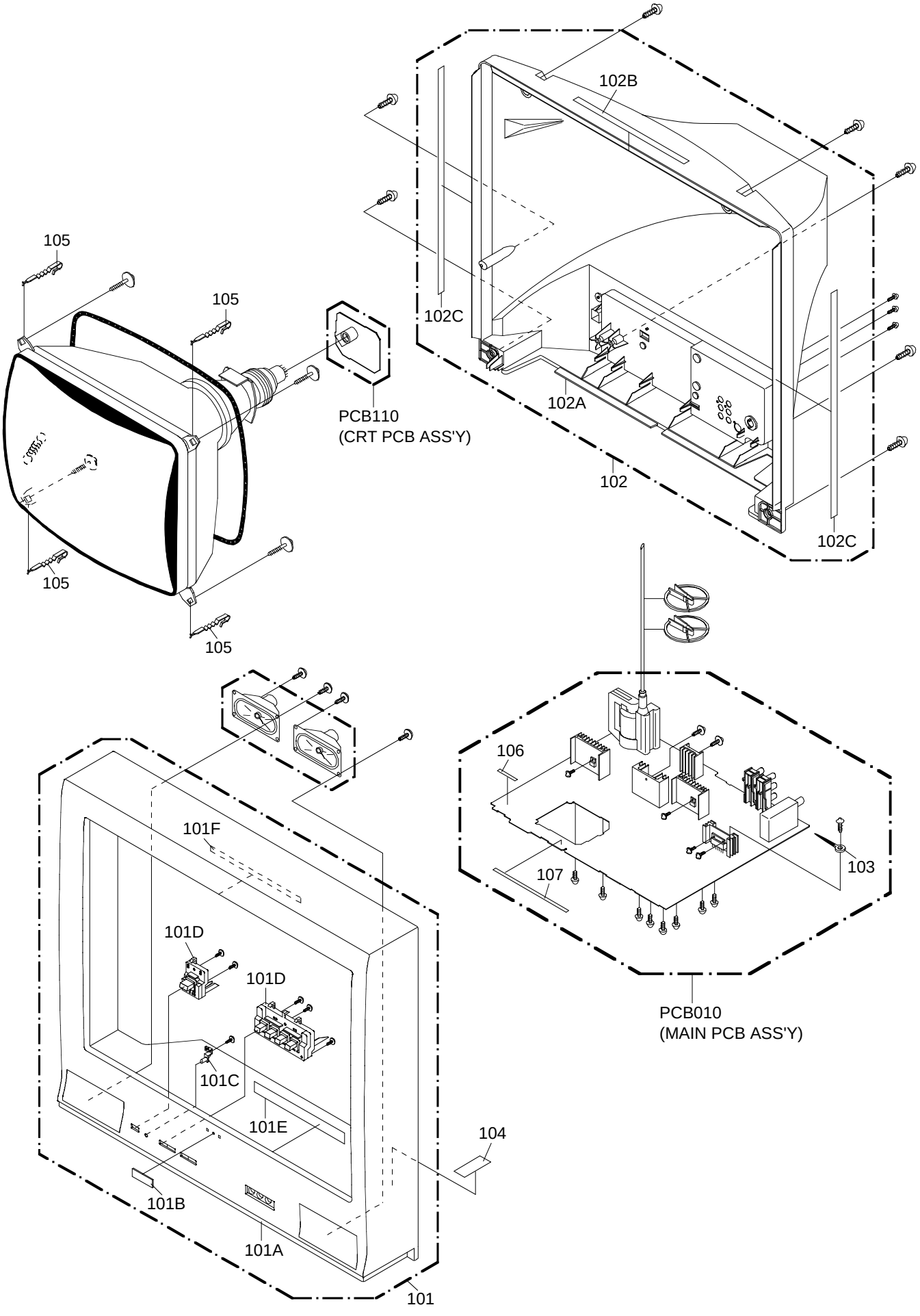
(27) 200mV 1ms/div
IC901 PIN 21



(28) 200mV 1ms/div
R1015

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



MECHANICAL REPLACEMENT PARTS LIST

Location No.	Part No.	Description	Reference No.
101	A3N422M720	CABINET,FRONT ASSY	
101A	701WPJC389	CABINET,FRONT	
101B	711WPCA052	BADGE,BRAND	
101C	713WPA0239	GUIDE,REMOCON	
101D	735WPAA484	BUTTON ASS'Y	
101E	800WQ00065	FELT SHEET	
101F	800WQ0A022	FELT SHEET	
102	A3N422M740	CABINET,BACK ASSY	
102A	702WPA0931	CABINET,BACK or	
	702WPAA552	CABINET,BACK	
102B	800WQ00066	FELT SHEET	
102C	800WQ00068	FELT SHEET	
103	8995034000	CORD CLIP UL CO.	
104	7230006755	SHEET,CAUTION	
105	762WPA0009	HOLDER,CRT WIRE	
106	800WQ0A013	FELT SHEET	
107	800WQ00045	FELT SHEET	
---	TQB2AA0494	INSTRUCTION BOOK	

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	Part No.	Description		Reference No.
		RESISTORS		
R001	R002T2683J	RC	68K OHM 1/2W	
R002	R002T2683J	RC	68K OHM 1/2W	
R003	R903N8101J	RC	100 OHM 1/8W	
R004	R903N8101J	RC	100 OHM 1/8W	
R005	R002T4101J	RC	100 OHM 1/4W	
R006	R002T4561J	RC	560 OHM 1/4W	
R101	R002T4561J	RC	560 OHM 1/4W	
R102	R903N8102J	RC	1K OHM 1/8W	
R103	R903N8102J	RC	1K OHM 1/8W	
R104	R002T4105J	RC	1M OHM 1/4W	
R105	R903N8332J	RC	3.3K OHM 1/8W	
R106	R903N8332J	RC	3.3K OHM 1/8W	
R107	R002T4101J	RC	100 OHM 1/4W	
R108	R002T4101J	RC	100 OHM 1/4W	
R109	R903N8103J	RC	10K OHM 1/8W	
R110	R903N8103J	RC	10K OHM 1/8W	
R112	R903N8104J	RC	100K OHM 1/8W	
R113	R903N8222J	RC	2.2K OHM 1/8W	
R115	R903N8223J	RC	22K OHM 1/8W	
R120	R903N8471J	RC	470 OHM 1/8W	
R123	R903N8222J	RC	2.2K OHM 1/8W	
R124	R002T4223J	RC	22K OHM 1/4W	
R125	R002T4473J	RC	47K OHM 1/4W	
R126	R903N8272J	RC	2.7K OHM 1/8W	
R127	R002T4102J	RC	1K OHM 1/4W	
R128	R903N8561J	RC	560 OHM 1/8W	
R129	R903N8473J	RC	47K OHM 1/8W	
R130	R002T4223J	RC	22K OHM 1/4W	
R131	R903N8222J	RC	2.2K OHM 1/8W	
R132	R002T4473J	RC	47K OHM 1/4W	
R143	R002T4470J	RC	47 OHM 1/4W	
R308	R002T4102J	RC	1K OHM 1/4W	
R314	R903N8224J	RC	220K OHM 1/8W	
R319	R903N8102J	RC	1K OHM 1/8W	
⚠ **R402**	**R3K181102J**	**R,METAL**	**1K OHM 1W**	
R406	R002T2010J	RC	1 OHM 1/2W	
R407	R002T2010J	RC	1 OHM 1/2W	
⚠ **R408**	**R4X5T6392F**	**R,METAL**	**3.9K OHM 1/6W**	
⚠ **R409**	**R4X5T6153F**	**R,METAL**	**15K OHM 1/6W**	
R410	R002T2561J	RC	560 OHM 1/2W	
R411	R002T2102J	RC	1K OHM 1/2W	
R412	R002T2271J	RC	270 OHM 1/2W	
⚠ **R414**	**R002T4331J**	**RC**	**330 OHM 1/4W**	
R415	R002T2561J	RC	560 OHM 1/2W	
R417	R002T4123J	RC	12K OHM 1/4W	
R418	R002T4273J	RC	27K OHM 1/4W	
R419	R002T4102J	RC	1K OHM 1/4W	
⚠ **R420**	**R002T4682J**	**RC**	**6.8K OHM 1/4W**	
R421	R002T2683J	RC	68K OHM 1/2W	
R422	R002T2822J	RC	8.2K OHM 1/2W	
⚠ **R424**	**R4X5T6183F**	**R,METAL**	**18K OHM 1/6W**	
R427	R002T4101J	RC	100 OHM 1/4W	
⚠ **R429**	**R63581010J**	**R,FUSE**	**1 OHM 1W**	
R430	R002T4682J	RC	6.8K OHM 1/4W	
R431	R002T4473J	RC	47K OHM 1/4W	
R433	R002T2271J	RC	270 OHM 1/2W	
R434	R002T2010J	RC	1 OHM 1/2W	
R435	R002T2010J	RC	1 OHM 1/2W	
⚠ **R436**	**R002T2010J**	**RC**	**1 OHM 1/2W**	
R437	R002T4272J	RC	2.7K OHM 1/4W	
⚠ **R438**	**R002T4103J**	**RC**	**10K OHM 1/4W**	
⚠ **R439**	**R3X181680J**	**R,METAL OXIDE**	**68 OHM 1W**	
R440	R002T4224J	RC	220K OHM 1/4W	
R441	R002T4273J	RC	27K OHM 1/4W	
R443	R002T4472J	RC	4.7K OHM 1/4W	
R444	R002T4223J	RC	22K OHM 1/4W	
R445	R002T4183J	RC	18K OHM 1/4W	
R446	R002T2471J	RC	470 OHM 1/2W	
R447	R002T4182J	RC	1.8K OHM 1/4W	
R450	R002T2683J	RC	68K OHM 1/2W	
R454	R002T2222J	RC	2.2K OHM 1/2W	
R455	R002T4272J	RC	2.7K OHM 1/4W	
R456	R002T4473J	RC	47K OHM 1/4W	
⚠ **R457**	**R635U2100J**	**R,FUSE**	**10 OHM 1/2W**	
R458	R002T2152J	RC	1.5K OHM 1/2W	
R459	R002T2821J	RC	820 OHM 1/2W	
R460	R002T4102J	RC	1K OHM 1/4W	

Location No.	Part No.	Description		Reference No.
		RESISTORS		
⚠ **R461**	**R65582010J**	**R,FUSE**	**1 OHM 1/2W**	
⚠ **R500**	**R0G3K2275K**	**RC**	**2.7M OHM 1/2W**	
⚠ **R501**	**R5X2CE1R2J**	**R,CEMENT**	**1.2 OHM 7W**	
⚠ **R502**	**R63581R22J**	**R,FUSE**	**0.22 OHM 1W**	
R503	R002T2275J	RC	2.7M OHM 1/2W	
R504	R002T2103J	RC	10K OHM 1/2W	
R505	R903N8103J	RC	10K OHM 1/8W	
R507	R002T4151J	RC	150 OHM 1/4W	
R508	R002T4101J	RC	100 OHM 1/4W	
R512	R002T4271J	RC	270 OHM 1/4W	
R513	R002T2222J	RC	2.2K OHM 1/2W	
⚠ **R514**	**R002T4682J**	**RC**	**6.8K OHM 1/4W**	
R515	R002T4103J	RC	10K OHM 1/4W	
R516	R002T4562J	RC	5.6K OHM 1/4W	
⚠ **R517**	**R3X28B3R3J**	**R,METAL**	**3.3 OHM 3W**	
⚠ **R520**	**R002T2155J**	**RC**	**1.5M OHM 1/2W**	
⚠ **R521**	**R3X28A151J**	**R,METAL OXIDE**	**150 OHM 2W**	
R523	R002T4103J	RC	10K OHM 1/4W	
⚠ **R527**	**R3X18AR68J**	**R,METAL OXIDE**	**0.68 OHM 2W**	
R532	R903N8821J	RC	820 OHM 1/8W	
R533	R903N8102J	RC	1K OHM 1/8W	
R534	R903N8101J	RC	100 OHM 1/8W	
R535	R002T4392J	RC	3.9K OHM 1/4W	
R536	R002T4822J	RC	8.2K OHM 1/4W	
R537	R002T4104J	RC	100K OHM 1/4W	
R538	R002T4103J	RC	10K OHM 1/4W	
⚠ **R542**	**R3X181R15J**	**R,METAL OXIDE**	**0.15 OHM 1W**	
⚠ **R543**	**R3X181331J**	**R,METAL OXIDE**	**330 OHM 1W**	
R547	R002T4101J	RC	100 OHM 1/4W	
R554	R002T4153J	RC	15K OHM 1/4W	
R555	R002T4104J	RC	100K OHM 1/4W	
R601	R903N8822J	RC	8.2K OHM 1/8W	
R602	R002T4101J	RC	100 OHM 1/4W	
R603	R002T2121J	RC	120 OHM 1/2W	
R604	R903N8101J	RC	100 OHM 1/8W	
R605	R002T2181J	RC	180 OHM 1/2W	
R606	R002T4223J	RC	22K OHM 1/4W	
R607	R903N8101J	RC	100 OHM 1/8W	
R608	R002T4101J	RC	100 OHM 1/4W	
R609	R903N8124J	RC	120K OHM 1/8W	
R610	R903N8562J	RC	5.6K OHM 1/8W	
R611	R002T4103J	RC	10K OHM 1/4W	
R613	R002T4101J	RC	100 OHM 1/4W	
R614	R002T4101J	RC	100 OHM 1/4W	
R615	R002T4101J	RC	100 OHM 1/4W	
R616	R903N8682J	RC	6.8K OHM 1/8W	
R617	R903N8273J	RC	27K OHM 1/8W	
R618	R002T4822J	RC	8.2K OHM 1/4W	
R620	R002T4102J	RC	1K OHM 1/4W	
R621	R903N8221J	RC	220 OHM 1/8W	
R627	R903N8103J	RC	10K OHM 1/8W	
⚠ **R629**	**R3X28B270J**	**R,METAL OXIDE**	**27 OHM 3W**	
R702	R002T4100J	RC	10 OHM 1/4W	
R703	R002T4102J	RC	1K OHM 1/4W	
R704	R903N8102J	RC	1K OHM 1/8W	
R707	R903N8122J	RC	1.2K OHM 1/8W	
R709	R903N8102J	RC	1K OHM 1/8W	
R710	R903N8152J	RC	1.5K OHM 1/8W	
R711	R903N8102J	RC	1K OHM 1/8W	
R713	R002T4750J	RC	75 OHM 1/4W	
R715	R903N8472J	RC	4.7K OHM 1/8W	
R719	R903N8750J	RC	75 OHM 1/8W	
R720	R002T4102J	RC	1K OHM 1/4W	
R721	R002T4102J	RC	1K OHM 1/4W	
R722	R903N8750J	RC	75 OHM 1/8W	
R723	R903N8750J	RC	75 OHM 1/8W	
R724	R903N8221J	RC	220 OHM 1/8W	
R725	R903N8152J	RC	1.5K OHM 1/8W	
R726	R903N8182J	RC	1.8K OHM 1/8W	
R727	R002T4332J	RC	3.3K OHM 1/4W	
R728	R903N8102J	RC	1K OHM 1/8W	
R729	R002T4822J	RC	8.2K OHM 1/4W	
R730	R002T4750J	RC	75 OHM 1/4W	
R731	R903N8222J	RC	2.2K OHM 1/8W	
R733	R903N8102J	RC	1K OHM 1/8W	
R734	R903N8102J	RC	1K OHM 1/8W	
R749	R002T4222J	RC	2.2K OHM 1/4W	

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	Part No.	Description		Reference No.
		RESISTORS		
R760	R002T4391J	RC	390 OHM 1/4W	
R801	R801R7221J	RC	220 OHM 1/10W	
R802	R002T2272J	RC	2.7K OHM 1/2W	
⚠ **R803**	**R3X18A123J**	**R,METAL OXIDE**	**12K OHM 2W**	
R804	R002T2272J	RC	2.7K OHM 1/2W	
⚠ **R805**	**R3X18A123J**	**R,METAL OXIDE**	**12K OHM 2W**	
R806	R002T2272J	RC	2.7K OHM 1/2W	
⚠ **R807**	**R3X18A123J**	**R,METAL OXIDE**	**12K OHM 2W**	
R808	R903N8221J	RC	220 OHM 1/8W	
R809	R903N8272J	RC	2.7K OHM 1/8W	
R810	R903N8221J	RC	220 OHM 1/8W	
R811	R903N8272J	RC	2.7K OHM 1/8W	
R812	R002T4680J	RC	68 OHM 1/4W	
R813	R903N8271J	RC	270 OHM 1/8W	
R814	R903N8272J	RC	2.7K OHM 1/8W	
R815	R903N8271J	RC	270 OHM 1/8W	
R816	R903N8271J	RC	270 OHM 1/8W	
R817	R002T4680J	RC	68 OHM 1/4W	
R818	R002T4680J	RC	68 OHM 1/4W	
R819	R002T4330J	RC	33 OHM 1/4W	
R901	R903N8221J	RC	220 OHM 1/8W	
R902	R903N8221J	RC	220 OHM 1/8W	
R903	R903N8224J	RC	220K OHM 1/8W	
R905	R903N8393J	RC	39K OHM 1/8W	
R907	R903N8563J	RC	56K OHM 1/8W	
R908	R903N8393J	RC	39K OHM 1/8W	
R909	R903N8563J	RC	56K OHM 1/8W	
R1002	R903N8183J	RC	18K OHM 1/8W	
R1004	R002T4102J	RC	1K OHM 1/4W	
R1006	R903N8182J	RC	1.8K OHM 1/8W	
R1008	R903N8182J	RC	1.8K OHM 1/8W	
R1009	R002T4102J	RC	1K OHM 1/4W	
R1010	R002T4103J	RC	10K OHM 1/4W	
R1014	R903N8392J	RC	3.9K OHM 1/8W	
R1015	R002T4392J	RC	3.9K OHM 1/4W	
R1501	R903N8681J	RC	680 OHM 1/8W	
R1502	R002T4102J	RC	1K OHM 1/4W	
R1503	R002T4272J	RC	2.7K OHM 1/4W	
R1504	R903N8101J	RC	100 OHM 1/8W	
R1505	R903N8101J	RC	100 OHM 1/8W	
R1506	R903N8821J	RC	820 OHM 1/8W	
R1508	R903N8102J	RC	1K OHM 1/8W	
R1512	R903N8102J	RC	1K OHM 1/8W	
R1514	R903N8273J	RC	27K OHM 1/8W	
R1515	R002T4273J	RC	27K OHM 1/4W	
R1516	R903N8221J	RC	220 OHM 1/8W	
R1517	R903N8102J	RC	1K OHM 1/8W	
R1518	R903N8561J	RC	560 OHM 1/8W	
R1519	R002T4561J	RC	560 OHM 1/4W	
R1520	R903N8102J	RC	1K OHM 1/8W	
R1521	R903N8221J	RC	220 OHM 1/8W	
R1524	R002T4102J	RC	1K OHM 1/4W	
R1526	R002T4102J	RC	1K OHM 1/4W	
		CAPACITORS		
C001	CS0RF0414Z	CC	0.01 UF 50V F	
C002	E02LT0102M	CE	1000 UF 6.3V	
C004	CQGTF04H4Z	CC	0.022 UF 50V F	
C005	CS0RCH412J	CC	100 PF 50V CH	
C006	CS0RCH412J	CC	100 PF 50V CH	
C101	CS0RF0414Z	CC	0.01 UF 50V F	
C102	CS0RF0414Z	CC	0.01 UF 50V F	
C103	E02LU1221M	CE	220 UF 10V	
C104	CS0RF0414Z	CC	0.01 UF 50V F	
C105	CS0KB04Q2K	CC	470 PF 50V B	
C106	E50HU5010M	CE	1 UF 50V	
C107	CS0KB04H2K	CC	220 PF 50V B	
C108	CS0RB0413K	CC	0.001 UF 50V B	
C113	CS0RCH4S2J	CC	560 PF 50V CH	
C116	E02NT2100M	CE	10 UF 16V	or
	E00NU2100M	CE	10 UF 16 V	
C118	E50HU0101M	CE	100 UF 6.3V	
C123	E50HU2100M	CE	10 UF 16V	
C301	CS0RB04L4K	CC	0.033 UF 50V B	
C302	E02LU5100M	CE	10 UF 50V	
C303	E02LU5100M	CE	10 UF 50V	
C307	CS0RB04E4K	CC	0.015 UF 50V B	
C309	CS0RB04N4K	CC	0.039 UF 50V B	

Location No.	Part No.	Description		Reference No.
		CAPACITORS		
C315	E50HU50R1M	CE	0.1 UF 50 V	
C316	E02LU5100M	CE	10 UF 50V	
C317	E02LU5100M	CE	10 UF 50V	
C318	CS0RCH412J	CC	100 PF 50V CH	
C319	CS0RCH412J	CC	100 PF 50V CH	
C320	E02LU5100M	CE	10 UF 50V	
C321	E50HU5010M	CE	1 UF 50V	
C322	E50HU50R1M	CE	0.1 UF 50 V	
C323	CS0RF0414Z	CC	0.01 UF 50V F	
C324	E02LU5100M	CE	10 UF 50V	
C325	E02LU5100M	CE	10 UF 50V	
C327	CS0RF0414Z	CC	0.01 UF 50V F	
C328	E02LU2101M	CE	100 UF 16V	
C332	E02LU5100M	CE	10 UF 50V	
C333	E02LU5100M	CE	10 UF 50V	
C343	CS0RB04L4K	CC	0.033 UF 50V B	
C344	CS0RB0414K	CC	0.01 UF 50V B	
C345	E02LU5100M	CE	10 UF 50V	
C346	E02LU5100M	CE	10 UF 50V	
C401	C0JTB0512K	CC	100 PF 500V B	
C402	C0PLRR713K	CC	0.001 UF 2KV RR	
C403	P235W1224J	CMP	0.22 UF 100V MKT	
⚠ **C408**	**CS0RCH4E2J**	**CC**	**150 PF 50V CH**	
⚠ **C412**	**P1F4T0333J**	**CP**	**0.033 UF 50V**	
C414	E02LT4101M	CE	100 UF 35V	
C417	E50HU54R7M	CE	4.7 UF 50V	
⚠ **C418**	**E02LF3102M**	**CE**	**1000 UF 25V**	
⚠ **C420**	**C0JTB05H3K**	**CC**	**0.0022UF 500V B**	
C421	CQGTCH4S2J	CC	560 PF 50V CH	
C427	E02LU5100M	CE	10 UF 50V	
C430	P235W1683J	CMP	0.068 UF 100V MKT	
C433	E02LF4222M	CE	2200 UF 35V	
⚠ **C434**	**E02LU8220M**	**CE**	**22 UF 100V**	
C435	P235W1104J	CMP	0.1 UF 100V MKT	
C436	P6M9T0334J	CMPL	0.33 UF 50V TF	
C437	P6M9T0683J	CMPL	0.068 UF 50V TF	
C439	E02LU5470M	CE	47 UF 50V	
C440	P232W1103J	CMP	0.01 UF 100V MMTS	
C441	E50HU5R47M	CE	0.47 UF 50V	
C442	E53FF56R8M	CE	6.8 UF 50V NP	
C444	E02LU2470M	CE	47 UF 16V	
C446	E02LU5220M	CE	22 UF 50V	
C448	E0ELTD100M	CE	10 UF 250V	
C449	P4J7F3394J	CMPP	0.39 UF 250V PMS	
C451	P3N1F5223J	CPP	0.022 UF 630V	
⚠ **C452**	**P4N8FJ153H**	**CMPP**	**0.015 UF 1.25KV**	
⚠ **C453**	**P4N8FJ272H**	**CMPP**	**0.0027UF 1.25KV**	
C455	C0JTB0512K	CC	100 PF 500V B	
C456	P6M9T0223J	CMPL	0.022 UF 50V TF	
⚠ **C501**	**E02LF4102M**	**CE**	**1000 UF 35V**	
C502	C0PWB0713K	CC	0.001 UF 2KV B	
C503	C0PWB0713K	CC	0.001 UF 2KV B	
C504	CQGTF0414Z	CC	0.01 UF 50V F	
⚠ **C505**	**P2122B224M**	**CMP**	**0.22 UF 275V ECQUL**	
⚠ **C506**	**P2122B104M**	**CMP**	**0.1 UF 275V ECQUL**	
⚠ **C507**	**E52DGC471M**	**CE**	**470 UF 200V**	
C509	P232W1473J	CMP	0.047 UF 100V MMTS	
C511	E02LU3470M	CE	47 UF 25V	
C512	P232W1103J	CMP	0.01 UF 100V MMTS	
C513	E02LU5100M	CE	10 UF 50V	
C514	C0PLRR7H3K	CC	0.0022 UF 2KV R	
C515	CQGTB0415K	CC	0.1 UF 50V B	
C516	C0JTB05H3K	CC	0.0022UF 500V B	
C517	C0PLRR7H3K	CC	0.0022 UF 2KV R	
C518	C0JTB05Q2K	CC	470 PF 500V B	
C519	CQGTCH4Q2J	CC	470 PF 50V CH	
C520	CQGTCH413J	CC	0.001 UF 50V CH	
⚠ **C521**	**E62NFB221M**	**CE**	**220 UF 160V**	
C527	E5EZF2222M	CE	2200 UF 16V	
⚠ **C528**	**CD39E0MH3M**	**CC**	**0.0022UF 250V**	
⚠ **C530**	**CD39E0M13M**	**CC**	**0.001 UF 250V**	
⚠ **C533**	**CD39E0M13M**	**CC**	**0.001 UF 250V**	
C539	E50HU52R2M	CE	2.2 UF 50V	
C601	E50HU5010M	CE	1 UF 50V	
C602	CQGTF0415Z	CC	0.1 UF 50V F	
C603	CS0KCH4H1J	CC	22 PF 50V CH	
C604	CS0RF04H4Z	CC	0.022 UF 50V F	

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	Part No.	Description	Reference No.
		CAPACITORS	
C605	E50HU5010M	CE 1 UF 50V	
C606	E02LU1471M	CE 470 UF 10V	
C609	CS0RF0414Z	CC 0.01 UF 50V F	
C610	E50HU0470M	CE 47 UF 6.3V	
C613	CS0RB0413K	CC 0.001 UF 50V B	
C617	E02LU1101M	CE 100 UF 10V	
C618	CS0KF0214Z	CC 0.01 UF 16V F	
C620	CQGTF0414Z	CC 0.01 UF 50V F	
C621	E02LU2470M	CE 47 UF 16V	
C623	E02LU2101M	CE 100 UF 16V	
C624	P235WE105J	CMP 1 UF 63V MKT	
C626	CS0RF0414Z	CC 0.01 UF 50V F	
C627	CS0RF0414Z	CC 0.01 UF 50V F	
C628	E50HU5010M	CE 1 UF 50V	
C629	CS0RF0414Z	CC 0.01 UF 50V F	
C630	E50HU2101M	CE 100 UF 16 V	
C632	E02LU1471M	CE 470 UF 10V	
C633	E00NU2100M	CE 10 UF 16 V	
C647	CS0RF04H4Z	CC 0.022 UF 50V F	
C652	E50HU5R22M	CE 0.22 UF 50 V	
C653	E02LU5010M	CE 1 UF 50V	
C701	E50HU2100M	CE 10 UF 16V	
C702	E50HU2100M	CE 10 UF 16V	
C703	E50HU2100M	CE 10 UF 16V	
C704	E50HU2100M	CE 10 UF 16V	
C705	E50HU5010M	CE 1 UF 50V	
C706	E50HU2100M	CE 10 UF 16V	
C707	CS0RF0415Z	CC 0.1 UF 50V F	
C708	CS0RCH4L1J	CC 33 PF 50V CH	
C712	E02LU1471M	CE 470 UF 10V	
C715	CS0RB04L3K	CC 0.0033UF 50V B	
C716	CS0RB04L3K	CC 0.0033UF 50V B	
C717	E50HU2100M	CE 10 UF 16V	
C718	E50HU2100M	CE 10 UF 16V	
C719	E02LU2470M	CE 47 UF 16V	
C720	E02LU2470M	CE 47 UF 16V	
C721	E02LU1471M	CE 470 UF 10V	
C722	CQGTF0415Z	CC 0.1 UF 50V F	
C723	CS0RB04L3K	CC 0.0033UF 50V B	
C724	CS0RB04L3K	CC 0.0033UF 50V B	
C725	CQGTF0415Z	CC 0.1 UF 50V F	
C726	E50HU2100M	CE 10 UF 16V	
C727	E50HU50R1M	CE 0.1 UF 50 V	
C728	E50HU2100M	CE 10 UF 16V	
C729	E02LU5100M	CE 10 UF 50V	
C730	E02LU2470M	CE 47 UF 16V	
C732	E02LU5100M	CE 10 UF 50V	
C802	C0JBB0713K	CC 0.001 UF 2KV B	
C809	CS0RCH4S2J	CC 560 PF 50V CH	
C810	CS0RCH4S2J	CC 560 PF 50V CH	
C811	CS0RCH4S2J	CC 560 PF 50V CH	
C813	CS0RB0413K	CC 0.001 UF 50V B	
C903	E50HU54R7M	CE 4.7 UF 50V	
C904	E50HU54R7M	CE 4.7 UF 50V	
C905	E50HU54R7M	CE 4.7 UF 50V	
C907	E50HU3100M	CE 10 UF 25 V	
C908	CS0RB0413K	CC 0.001 UF 50V B	
C910	E02LU2101M	CE 100 UF 16V	
C911	E50HU5R33M	CE 0.33 UF 50 V	
C912	CS0RB04Q4K	CC 0.047 UF 50V B	
C913	CS0RB04H4K	CC 0.022 UF 50V B	
C914	CS0RF0415Z	CC 0.1 UF 50V F	
C915	E50HU53R3M	CE 3.3 UF 50V	
C916	CS0RF0415Z	CC 0.1 UF 50V F	
C917	CS0RF0415Z	CC 0.1 UF 50V F	
C918	CS0RF0415Z	CC 0.1 UF 50V F	
C919	E50HU5100M	CE 10 UF 50V	
C920	E50HU5010M	CE 1 UF 50V	
C921	E50HU5010M	CE 1 UF 50V	
C1003	E50HU52R2M	CE 2.2 UF 50V	
C1004	CS0RF0414Z	CC 0.01 UF 50V F	
C1005	E50HU52R2M	CE 2.2 UF 50V	
C1007	CS0RF0414Z	CC 0.01 UF 50V F	
C1008	E02LT3102M	CE 1000 UF 25V	
C1009	E02LT3102M	CE 1000 UF 25V	
C1013	E02LU3101M	CE 100 UF 25V	
C1014	E02LU2470M	CE 47 UF 16V	

Location No.	Part No.	Description	Reference No.
		CAPACITORS	
C1016	E02LF4222M	CE 2200 UF 35V	
C1017	E50HU0470M	CE 47 UF 6.3V	
C1502	CS0RCH4Q1J	CC 47 PF 50V CH	
C1504	E00NU5R47M	CE 0.47 UF 50 V	
C1505	E50HU54R7M	CE 4.7 UF 50V	
C1506	CS0KF0214Z	CC 0.01 UF 16V F	
C1507	CS0KF0214Z	CC 0.01 UF 16V F	
C1508	CS0RB0414K	CC 0.01 UF 50V B	
C1509	CS0RB0413K	CC 0.001 UF 50V B	
C1510	CS0RB0414K	CC 0.01 UF 50V B	
C1511	CS0RB0414K	CC 0.01 UF 50V B	
C1512	E02LU2101M	CE 100 UF 16V	
C1513	E02LU0101M	CE 100 UF 6.3V	
C1514	E02LU1101M	CE 100 UF 10V	
C1515	CQGTB0414K	CC 0.01 UF 50V B	
C1516	CS0RB0414K	CC 0.01 UF 50V B	
C1517	CS0RB0414K	CC 0.01 UF 50V B	
C1518	CS0RCH4G2J	CC 180 PF 50V CH	
C1519	CS0RB0414K	CC 0.01 UF 50V B	
C1521	CS0KCH411D	CC 10 PF 50V CH	
C1523	CS0RB0414K	CC 0.01 UF 50V B	
C1524	E50HU2100M	CE 10 UF 16V	
C1526	CS0KSL4S1K	CC 56 PF 50V SL	
C1527	E00NU2100M	CE 10 UF 16 V	
C1533	CS0RCH4W1J	CC 82 PF 50V CH	
C1534	CS0RCH4W1J	CC 82 PF 50V CH	
		DIODES	
D001	D97U03301B	DIODE,ZENER MTZJ33B T-77	
⚠ **D404**	**D97U05R11B**	**DIODE,ZENER MTZJ5.1B T-77**	
⚠ **D405**	**D97U09R11B**	**DIODE,ZENER MTZJ9.1B T-77**	
⚠ **D406**	**D2WT011E10**	**DIODE,SILICON 11E1-EIC**	
D407	D2WTAU02A0	DIODE,SILICON AU02A-EIC	
D410	D2WTAU02A0	DIODE,SILICON AU02A-EIC	
⚠ **D411**	**D2WTAU02A0**	**DIODE,SILICON AU02A-EIC**	
D412	D2WT011E10	DIODE,SILICON 11E1-EIC	
D414	D2LT105SG0	DIODE,FAST RECOVERY FR105SG-A2	
D415	D2LT105SG0	DIODE,FAST RECOVERY FR105SG-A2	
D417	D2WT011E10	DIODE,SILICON 11E1-EIC	
D418	D97U03301B	DIODE,ZENER MTZJ33B T-77	
D419	D97U03301B	DIODE,ZENER MTZJ33B T-77	
D451	D2CF2016L0	DIODE,SILICON FE201-6L49	
D452	D2CF0715L0	DIODE,SILICON ERD07-15L50	
⚠ **D501**	**D2WTRM11C0**	**DIODE,SILICON RM11C-EIC**	
⚠ **D502**	**D2WTRM11C0**	**DIODE,SILICON RM11C-EIC**	
⚠ **D503**	**D2WTRM11C0**	**DIODE,SILICON RM11C-EIC**	
⚠ **D504**	**D2WTRM11C0**	**DIODE,SILICON RM11C-EIC**	
D505	D28F30DF60	DIODE,RECTIFIER 30DF6-FC	
D506	D97U01801B	DIODE,ZENER MTZJ18B T-77	
D507	D2WT011E10	DIODE,SILICON 11E1-EIC	
D508	D1VT001330	DIODE,SILICON 1SS133T-77	
⚠ **D509**	**D97U01801B**	**DIODE,ZENER MTZJ18B T-77**	
⚠ **D510**	**D2CF2016L0**	**DIODE,SILICON FE201-6L49**	
D511	D97U05R11B	DIODE,ZENER MTZJ5.1B T-77	
D512	D28T21DQN9	DIODE,SCHOTTKY 21DQ09N-TA2B1	
D514	D1VT001330	DIODE,SILICON 1SS133T-77	
D515	D97U08R21B	DIODE,ZENER MTZJ8.2B T-77	
D516	D1VT001330	DIODE,SILICON 1SS133T-77	
D517	D1VT001330	DIODE,SILICON 1SS133T-77	
D518	D1VT001330	DIODE,SILICON 1SS133T-77	
⚠ **D521**	**D1VT001330**	**DIODE,SILICON 1SS133T-77**	
D523	D2WXN49370	DIODE,SILICON 1N4937	
D525	D97U08R21B	DIODE,ZENER MTZJ8.2B T-77	
D528	D97U05R61B	DIODE,ZENER MTZJ5.6B T-77	
D529	D97U05R11B	DIODE,ZENER MTZJ5.1B T-77	
D603	D1VT001330	DIODE,SILICON 1SS133T-77	
D604	D97U08R21B	DIODE,ZENER MTZJ8.2B T-77	
D606	D2WT011E10	DIODE,SILICON 11E1-EIC	
D801	D1VT001330	DIODE,SILICON 1SS133T-77	
D802	D1VT001330	DIODE,SILICON 1SS133T-77	
D803	D1VT001330	DIODE,SILICON 1SS133T-77	
D1501	D1VT001330	DIODE,SILICON 1SS133T-77	
D1502	D1VT001330	DIODE,SILICON 1SS133T-77	
		ICS	
IC101	I56F07094B	IC OEC7094B	
IC199	A3N422M015	IC S-24C04BDP-LA	
IC302	I01FF58910	IC AN5891SA-E1V	
⚠ **IC401**	**I03TD80410**	**IC LA78041**	

ELECTRICAL REPLACEMENT PARTS LIST

Location No	Part No.	Description		Reference No.
		ICS		
⚠	**IC501**	**0002E00610**	**PHOTO COUPLER**	**LTV-817M-VB**
	IC702	I0QS02246L	IC	NJM2246L
	IC901	I01FF58290	IC	AN5829S
	IC1001	I0FSP52760	IC	AN5276
	IC1501	I05FE90A45	IC	TC90A45F
	IC1502	I0QF022830	IC	NJM2283M
		TRANSISTORS		
	Q401	TDUF024990	TRANSISTOR,SILICON	2SD2499
	Q402	TCAT03227Y	TRANSISTOR,SILICON	KTC3227_Y-AT
	Q407	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
	Q408	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
	Q409	TC30041590	TRANSISTOR,SILICON	2SC4159(D,E)
	Q501	T220033260	FET	2SK3326(2)
	Q502	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
	Q504	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
	Q507	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
	Q509	TNATB03005	COMPOUND TRANSISTOR	KRC102MAT
	Q512	TA3T016240	TRANSISTOR,SILICON	2SA1624-AA
	Q601	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
	Q602	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
	Q603	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
	Q606	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
	Q607	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
	Q608	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
	Q610	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
	Q701	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
	Q702	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
	Q703	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
	Q705	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
	Q706	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
	Q707	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
	Q801	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
	Q802	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
	Q803	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
⚠	**Q804**	**TCA0042170**	**TRANSISTOR,SILICON**	**KTC4217(O,Y)**
⚠	**Q805**	**TCA0042170**	**TRANSISTOR,SILICON**	**KTC4217(O,Y)**
	Q806	TCA0042170	TRANSISTOR,SILICON	KTC4217(O,Y)
	Q901	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
	Q902	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
	Q1501	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
	Q1502	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
	Q1505	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
	Q1507	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
	Q1508	TNATB03005	COMPOUND TRANSISTOR	KRC102MAT
		COILS &TRANSFORMERS		
	L001	02167F100J	COIL	10 UH
	L301	02167F101J	COIL	100 UH
	L401	022100034A	COIL,LINEARITY	ELH5L4132N
	L403	02DK000058	COIL,CHOKE	02DK000058
⚠	**L501**	**029T000101**	**COIL,LINE FILTER**	**2R2A752F28Y**
⚠	**L503**	**028R270010**	**COIL,DEGAUSS**	**8R270010**
	L902	02167F101J	COIL	100 UH
	L1503	021LA6100J	COIL	10 UH
	L1504	021LA6100J	COIL	10 UH
	T401	0450190161	TRANS,HORIZONTAL DRIVE	ETH19Y203AY
⚠	**T501**	**0481400694**	**TRANSFORMER,SWITCHING**	**81400694**
		JACKS		
	J701	060J431019	RCA JACK	MSP-213V2-432 PBSN
	J705	063Q700002	JACK	YKF51-5503
	J707	060J431019	RCA JACK	MSP-213V2-432 PBSN
	J710	060G401047	RCA JACK	HTJ-032-03AY
	J711	060G401046	RCA JACK	HTJ-032-03AW
	J712	060G401039	RCA JACK	HTJ-032-03AR
⚠	**J801**	**066F130020**	**SOCKET,CATHODE RAY,TUI**	**ISHS53S**
		SWITCHES		
	SW101	0504101T34	SWITCH,TACT	EVQ21505R
	SW102	0504101T34	SWITCH,TACT	EVQ21505R
	SW103	0504101T34	SWITCH,TACT	EVQ21505R
	SW104	0504101T34	SWITCH,TACT	EVQ21505R
	SW105	0504101T34	SWITCH,TACT	EVQ21505R
		VARIABLE RESISTORS		
	VR401	V1K63H3BTE	VOLUME,SEMI FIXED	NVG6TLTAB222
	VR402	V1163Q2BTC	VOLUME,SEMI FIXED	EVNCYAA03BQ2
	VR403	V1163H4BTC	VOLUME,SEMI FIXED	EVNCYAA03BE4
	VR404	V1163H4BTC	VOLUME,SEMI FIXED	EVNCYAA03BE4
		P.C.BOARD ASSEMBLIES		
	PCB010	A3N422M010	PCB ASS'Y	TMC589A

Location No	Part No.	Description		Reference No.
		P.C.BOARD ASSEMBLIES		
	PCB110	A3N422M110	PCB ASS'Y	TCC446A
		MISCELLANEOUS		
	B501	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
	B502	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
	B504	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
	B1501	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
⚠	**CD501**	**1209415911**	**CORD,AC BUSH**	**9415911**
	CD502	069D01001A	CONNECTOR PCB SIDE	003P-2100
	CD801	06CU822501	CORD CONNECTOR	CU822501
	CD802	WDL6052038	FLAT CABLE AWM2468	AWG26 6C BLACK 520MM
	CD803	WBL6038038	FLAT CABLE AWM2468	AWG26 4C BLACK 380MM
	CP401	069X460029	CONNECTOR PCB SIDE	B06B-DVS
	CP502	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
	CP601	0694270139	CONNECTOR PCB SIDE	173979-7
	CP801	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
	CP1001	069S140419	CONNECTOR PCB SIDE	A2502WV2-4P
⚠	**F501**	**081PC6R305**	**FUSE**	**51MS063L**
⚠	**FB401**	**043227014R**	**TRANSFORMER,FLYBAC**	**43227014R**
	OS101	0773071005	REMOTE RECEIVER	RPM7137-SH5
⚠	**RY501**	**0560V20115**	**RELAY**	**ALKS321**
⚠	**SP1001**	**070Y435005**	**SPEAKER**	**S0509F12-D**
⚠	**TH501**	**D8EE0B1400**	**DEGAUSS ELEMENT**	**B59203-S1060-B14**
⚠	**TU001**	**0163100007**	**RF UNIT**	**ENG36A01GR**
⚠	**V801**	**0981270B01**	**CRT W/DY**	**M68LWF088X**
	X601	100CT3R505	CRYSTAL	HC-49/C
	TM101	EUR7713020	TRANSMITER	076G0GP010

RESISTOR
RC..... CARBON RESISTOR

CAPACITORS
CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

Panasonic®

Printed in U.S.A.

Other ManualsLib Projects

www.manualslib.com

www.manualslib.de

www.manualslib.es

www.manualslib.fr

www.manualslib.nl

www.manualslib.mx

www.manualslib.tech 30+ Languages